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USSR Report

AGRICULTURE

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LIVESTOCK FEED PROCUREMENT

UDC 636.085./.087

IMPROVEMENTS IN QUALITY OF MIXED FEED PRODUCTION SOUGHT

Scientific Norms, Application

Moscow ZHIVOTNOVODSTVO in Russian No 6, Jun 85 pp 31-34

[Article by K. M. Solntsev, Academician, VASKhNIL [All Union Academy of Agricultural Sciences imeni V. I. Lenin]: "Improve Mixed Feed Quality"]

[Text] The organization of animals' feeding with complete rations is important in improving their productivity. It is necessary to use high quality mixed feeds to obtain 4,000 and more kg of milk per cow; cattle daily weight gains of 900-1,200 grams and 600-700 gram pig daily weight gains. In recentyears state mixed feed enterprises, interfarm mixed feed plants and shops have been increasing the production of mixed feeds, protein-vitamin additives and feed mixtures. However, in many cases, the quality of mixed feeds does not meet requirements. They are produced from obsolete formulas, much grain at kolkhozes and sovkhozes is fed in the form of the simplest feed mixtures without enrichment with protein, vitamin and mineral additives. In view of this problem's importance, the editorial board is putting it up for discussion and giving the first word to VASKhNIL Academician K. M. Solntsev. We invite scientists, and managers and specialists at ministries, departments and farms to give their opinions about how to more effectively use concentrates and improve mixed feed quality.

Organizations for the production of complete mixed feeds are now working on improvements in the productive value of mixed feeds for intensified animal husbandry.

High production levels in poultry raising, for example, and this sector's reaching first place in the world with regard to volume are supported through the intensive development of mixed feed industry enterprises supplying poulty factories with special mixed feeds, improvements in their composition and production technology. This sector's example convincingly shows that balanced mixed feeds increase the productivity effect of simple feed mixtures by 25-30 percent and more. Poultry factories now consume two fold less feeds per 1,000

eggs than they previously did. Mixed feed for poultry factories was a powerful accelerator of scientific-technical progress in the sector. However, there are still bottlenecks in the production of mixed feeds for poultry.

The mixed feed industry still has an insignificant role in improving animal productivity, delaying growth rates for animal product output.

In the past 10 years animal husbandry scientific research institutes have done significant work to improve mixed feed formulas. Scientists have developed formulas which during production testing have shown better production effects than existing ones. They reflect new principles in the organization of animal feeding: reductions in the amount of grain, and in protein consumption, and the replacement of some feeds of animal origin with those of vegetable origin. The new formulas are calculated to attain higher levels of agricultural animal productivity. For example, it was only in 1984 that research and production testing was completed on new mixed feed formulas distinguished from standard ones by their high efficiency. The Siberian Scientific-Research and Design-Technological Institute for Animal Husbandry has developed a mixed feed formula for cows producing up to 6,000 kg of milk annually which reduces grain consumption by 17-20 percent.

The Belorussian Scientific Reseach Institute for Animal Husbandry has created a highly effective mixed feed for sows with farrow which is distinguished by more economical (23 percent) protein use.

The Moldavian Scientific Research Institute for Animal Husbandry and Veterinary Science has developed a new mixed feed for cows which gives better results than does standard mixed feed.

The Scientific Research Institute for Animal Husbandry in the UkSSR Forest-Steppe and Forest Area has proposed 6 new mixed feed formulas for swine, which have shown good results during testing. These formula contain less feed of animal origin than do standard formula.

Altogether, during four years of the current five-year plan, science has developed, tested and recommended more than 150 new mixed feed formulas, premixes, and protein-vitamin additives.

The creation of new formulas and their extensive production testing is a call of the times. It is directed towards scientific and technical progress in the mixed feed industry. However, these developments are still only slowly being introduced into production.

The Main Administration for the Mixed Feed Industry, USSR Ministry of Procurement, republic ministries, enterprises subordinate to them and an extensive network of interfarm enterprises have been guided for more than 10 years by the main formulas for mixed feeds published as a handbook in 1972 (the mixed feed formulas for poultry were updated since 1972). Of course, it seriously lags behind the present levels of animal feeding science.

Many republic and RSFSR zonal administrations for the mixed feed industry have started using computers to compile formulas based on the actual availability

of raw materials at enterprises following obsolete formulas and GOSTs [State Standards]. Computers facilitate calculations and speed up the process, but this method of making formulas cannot be considered progressive, as it does not take into account contemporary scientific achievements.

A large amount of work has now been completed on new detailed feeding norms, which are based upon a more complete accounting of animals' requirements for nutrients, their ratios and accessibility for use to produce output with the least energy consumption. Simultaneously, there is a conversion to the new energy feed unit (EKE), the use of which will make it possible to evaluate feeds by content of metabolizable energy.

New all-union, republic and zonal handbooks for the composition and nutritional value of feeds are being prepared for publication. This extensive work by animal husbandry scientific research institutes must be closely linked to the updating of mixed feed formulas and their complete correspondence with the new system of normed feeding. The certification [udostovereniye] of feed quality, which feed enterprises now give consumers, will include up to 30 different indicators.

Understandably, it makes no sense to recalculate all old formulas (1972). It is necessary to plan the simultaneous conversion primarily to new formulas for mixed feeds, premixes and BVD [Protein vitamin additives]. It is completely in accordance with established rules to determine a rhythm for updating formulas; for example, every five years conducting an attestation [attestatsiya] of old formulas and theirsimultaneous supplementation with new prescriptions [propisi]. This is an obligatory condition for scientific and technical progress in mixed feeds.

Developing and summarizing materials on the nutritional value of feeds by zone naturally entails the conversion to zonal formulas for mixed feeds. During feed production the biochemical composition of feeds and their varying nutritional value in different zones of the country are not now taken into account at all, or only insufficiently taken into account. This cannot be considered scientific. For example, the Industrialnyy Sovkhoz in Krasnodar Kray, obtaining mixed feeds from the Timashevskiy plant and premixes from Voronezh, enriches mixed feeds directly at the farm. To do this, seven years ago the sovkhoz installed a special apparatus in the feed warehouse. Scientists at the North Caucasus NIIZh worked out a system for adding trace element salts. The use of enriched feeds makes it possible to increase swine live weight gain by 8-9 percent. There are such examples in many republics, krays and oblasts.

Over the years zonal scientific research institutes for animal husbandry have accumulated extensive material on the composition and nutritional value of local feeds and on the development of feeding norms which take into consideration animals' breeding background and direction of specialization. Science can offer zonal formulas for mixed feeds. This will help improve the efficiency with which they are used.

It is fitting to note the completely unjustified lack of attention to the production of mixed feeds for sheep. There are only 3 formulas for sheep, 2 of

which have been developed in the Uzbek SSR and have a specific structure (a high level of cotton seed meal). However, mixed feed plants are not producing the highly productive mixed feeds developed by the All-Union Scientific Research Institute for Animal Husbandry, the Ukrainian Scientific Research Institute for Animal Husbandry in the Steppe Regionsimeni M. F. Ivanov "Aksaniya Nova" and other institutes. It is perfectly clear that the conversion of sheep raising to an intensive development path is unthinkable without producing the necessary volumes of diverse, complete mixed feeds.

If there are increases in the digestible protein content of green feeds in the rations of cattle and sheep (each feed unit of clover contains 147 grams of digestible protein, of meadow grass -- 108 g, alfalfa -- 235 g, sainfoin -- 127 grams), then it is advisable to reduce protein content in mixed feeds during the summer, that is, convert to seasonal formulas. This simple procedure would make it possible to save up to 500,000 tons of digestible protein in the production of mixed feed for cattle during the summer and the creation of a solid reserves for the production of complete mixed feeds during the winter.

The idea of seasonal formulas for mixed feeds is not new. It is, to some extent, reflected in official handbooks for mixed feed formulas. However the principle of saving protein feeds is only poorly utilized in those feeds intended for cattle during the summer. For example, the K-60-6 and K-60-7 formula for dairy cows call for 45-69 percent of protein intake being in mixed feeds and for increasing their digestible protein content to 126-158 g per kg. The K-64-1 and K-64-2 mixed feeds for young cattle more than 1 year old, the K-64-3 for year around cattle feeding provide for 57-42 percent of the animals' protein needs. The conversion of mixed feed enterprises to corrected seasonal formulas is an effective and rational measure.

Improvements in mixed feed formulas and simultaneous improvements in quality are still urgent tasks, especially in regard to reductions in the level of grain ingredients, first of all wheat. In updating formula composition, extensive use should be made of new feed materials and their introduction as mixed feed ingredients. For example, meat industry enterprises are beginning to produce dry vegetable-meat feeds from gizzards and nonfood fats. This feed contains 17 percent protein and 20-30 percent fat. It is obviously necessary to test this type of feed as an additive for feeding agricultural animals.

The so-called non-traditional feeds are an important reserve of raw materials for the mixed feed industry. In the interests of developing animal husbandry's feed base, they should be more actively utilized, primarily in mixed feed production.

The creation of new feed materials, biologically active substances, and products of microbiological and chemical synthesis is especially important. While at one time the first mixed feed plants had no more than 10 types of raw material at their disposal, now more than 100 types of feed materials and additives are arriving at such plants.

Of extreme importance in improving mixed feed quality is the introduction of modern technology for the preliminary processing of feed raw material prior to

putting it into mixed feed in order to improve its nutritional value and biological completeness. The introduction of extruded grain components, which make it possible to increase starch digestibility and dextrin content (up to 10 percent) and simultaneously remove bacterial and fungal microflora should be considered a major technological achievement. Scientific research on extrusion conducted by the All-Union Scientific Research Institute for the Mixed Feed Industry at the Kuznets Experimental Mixed Feed Plant and the swine raising complex shows that piglets eating mixed feed with preliminarily extruded grain components had 18.6 percent higher daily weight gains than when they ate mixed feeds in which the grain components had not been extruded.

Research by the NIIZh [Scientific Research for Animal Husbandry] for the Ukrainian SSR Forest Steppe and Forest Area shows that powerful physical forces (up to 30 Pascals) acting on grain friction and heating (120-150 degrees C) cause deep physical changes, not only in carbohydrates, but also in protein. Experiments with animals show that for suckling pigs it is possible to replace half of the feeds of animal origin with extruded peas and for piglets over two months old all the meat-bone and fish meal can be replaced.

Experiments at the All-Union Scientific Research Institute for Animal Husbandry had good results feeding early weaned piglets and lambs feeds in which the grain had been flaked and micronized. Heat treating and exposure to infrared radiation helps improve starch solubility and digestibility, while taste is improved by treatment with aromatic substances. Hydrothermal and thermal treatment of barley causes hydrolysis of high molecular weight carbohydrates up to sugars and dextrins and intensifies the ability of organic substances to break down cellulose and improves their digestibility. The flaking of grain for mixed feeds increased piglet daily weight gain by 13.7 percent and that of lambs by 8.9 percent, for micronizing the figures are 34 and 5.9 percent.

For four years the plant of the Tukums Interkolkhoz Association for Mixed Feed Production, Latvian SSR has been operating a line for micronizing grain used to prepare mixed feeds for young swine. The plant laboratory has shown that this increases grain sugar content by 20-30 percent. The grain is exposed to radiation for 40-60 seconds, to 250-320 degrees C on the belt surface and moisture is reduced to 5.5-6.5 percent. At the plant's initiative, in Tukumskiy Rayon there were six scientific experiments on feeding animals mixed feed with micronized grains. They had convincing results. The experimental suckling pigs were 6-14 percent heavier than the control animals, while feed consumption was reduced 6.5-21.1 percent. The economic effect was 4 rubles 27 kopecks per animal at weaning time. Unfortunately, there are not enough such examples. The question arises: why isn't this method legalized?

From domestic and world experience it is known that there are large reserves for reducing the amount of grain in mixed feeds through the use of sugar beet pulp, food yeasts, and brewers dried grains. However, there are difficulties in its practical realization because of lack of common interests between, on the one hand, the local consumers of these feeds (kolkhozes and sovkhozes) who want to feed all these materials in a raw form to livestock, and, on the other, organizations in the industry for processing the feeds into highly valuable raw materials for delivery to mixed feed plants, and who consequently

want to reduce their delivery to kolkhozes and sovkhozes. As a result of this, the production of dried pulp is growing slowly.

We propose, that in the interests of the matter, USSR Gosplan and concerned ministries must change the existing procedure for the sales of secondary raw materials (sugar beet pulp, food yeasts and others) and increase their production in dry form for delivery to mixed feed industry enterprises. In addition, it is also very important to change managers' attitude towards the production of dried pulp. This should be based upon the principle that dried pulp is just as important to the country as is good sugar.

It is fitting to note that studies show reductions in the nutritional value of pulp cost the country 2-3 million feed units annually. It is known that nurtient losses during the storage and sales of sour pulp residue reach 50 percent. A convincing experiment was conduced at the Kolkhoz imeni Olminskiy in Alekseyevskiy Rayon, Belgorod Oblast. This kolkhoz received 600 male calves for feeding rations containing either dried or sour pulp. In the first case daily live weight gain was 1,015 grams, in the second 161 less. For the rations with dried pulp, each 1 kg of growth required 1.6 feed units less and prime cost per 1 quintal of growth was 21 percent less.

Scientific research on the feed value of brewers dried grains as a protein additive to mixed feed shows that male calves being fed mixed feeds with sunflower cake (control) had a 967 g daily weight gain, while those receiving dry grain mash (experiment) gained 933 g daily. Consequently, brewers dried grains can be used in mixed feeds as a balanced additive, just like seedcake and whey.

Improvements in mixed feed quality involve expansion in raw material resources in feeds of animal origin. This year the mixed feed industry will receive considerably more feed meal of animal origin than last year. There could be sizable growth here if the meat industry would acceleate the introduction of progressive technology. For example, it is only slowly reconstructing lines for producing dressed poultry. This means the loss of considerable quantities of valuable raw material for the production of meat and bone meal. Sausage production is still unsatisfactorily supplied with artificial casings. The use of intestines for this purpose hinders increases in the production of meat meal for feed purposes. It is necessary that meat combines quickly master the technology for producing protein concentrate from horn and hoof wastes and hydrolized carbamide. At a number of enterprises there are still losses of secondary raw material which could be used as additional protein supplies.

There are now conditions for taking common interests into consideration at agroindustrial associations. Therefore radical measures should be taken so that the partners in the agro-industrial complex can more rapidly eliminate shortcomings. Isn't it a sacred obligation for processing industry plants to supply all their secondary raw materials to enterprises working for animal husbandry?

The conversion to the production of mixed feeds in granular form is a progressive measure. It eliminates the possibility of the self-sorting of ingredients during transportation, which reduces mixed feed quality. There are

no losses when animals eat granulated concentrates. According to many experiments, feeding animals granulated feeds reduces nutrient consumption per unit of output. Unfortunately, granulated feed production still does not exceed 19 percent of total feed output, something that cannot be tolerated. The fact is that many mixed feed plants equipped with granulation lines only produce 20 percent of their mixed feeds in granular form.

The production of mixed feeds in strict accordance with their formulas remains a very urgent question. Deviations of formulas from established levels of nutrient content have, unfortunately acquired an almost universal character. As a rule, so-called "corrections" in formulas involve deterioration in mixed feed quality and its protein and microelement content. Therefore, in order to avoid declines in animal productivity, many farms are compelled to additionally process semi-processed mixed feeds in special feed facilities and purchase protein feeds and various feed additives.

Thus, those entrusted with the production of high quality mixed feeds cannot produce them because of raw material shortages, while those entrusted with the production of meat, milk and eggs must organize special shops for the additional processing and improvement of mixed feeds with purchased seedcake, whey, fish and meat-bone meal and feed additives, which are not available in sufficient quantities for mixed feed enterprises to produce complete mixed feeds.

For example, every day the Ustinovskiy Poultry Factory in the Udmurt ASSR adds to its mixed feeds 1,000 kg of fish meal, 1,500 kg of grass meal and other additives obtained from mixed feed enterprises.

It is perfectly obvious that directive organs should more rationally distribute raw material for mixed feed production, allocating it first of all to state and inter-farm mixed feed enterprises. Low productivity installations for additionally processing mixed feed at farms should not substitute for the mixed feed industry.

It must be noted that a sizable amount of incomplete feeds which farms obtain is not given any additional processing prior to use. Also, farms do not obtain enough of many products.

The production of protein-vitamin additives at state plants for delivery to interfarm mixed feed facilities and shops was the basis for the orgin and development of these enterprises. However, the planned supply of interfarm enterprises with protein additives lessened attention towards increasing protein feed production at kolkhozes and sovkhozes. On some farms, there were even declines in the area planted to grain and seed legume crops. As a result, even though there were high growth rates in the state and interfarm mixed feed industry, the annual shortage of protein feeds began to grow.

In addition to increased production of protein feeds at state mixed feed plants, in our opinion, there should be continued attention towards the development of the interfarm mixed feed industry. Here it is necessary to produce complete mixed feeds on the basis of enriched feed additives obtained from the state, as well as grain feed and grass meal and protein feed produced

by the farms themselves. This direction's development requires organizing the production (in addition to protein-vitamin additives) of enriched additives (macro and micro elements, ammino acids, feed antibiotics, enzymes, etc) at state mixed feed plants and considerable increases in the production of protein feeds at kolkhozes and sovkhozes. Several years ago, at the suggestion of VASKhNIL's Department of Animal Husbandry and the Belorussian Agricultural Academy, plants at the Main Administration for the Microbiological Industry developed enrichment additives using four formulas which had good zootechnical and economic results upon testing at a large group of farms in Belorussia. The production of these additive should now be increased.

There are widely known results from numerous domestic scientific studies on the high efficiency of using feed antibiotics in raising and feeding young cattle, swine, sheep, chicken, ducks, geese and turkeys.

This is why the practice of curtailing the production of mixed feed enriched with feed antibiotics appears unfounded. For example, in 1985 the Main Administration for the Mixed Feed Industry, USSR Ministry of Procurements only met 37.7 percent of its annual requirements for feed antibiotics for animal husbandry; this is less than in 1984.

The remaining feed antibiotics are sent to the trade network of Zoovetsnab [Zootechnical and Veterinary Supply Administration] for retail sales to kolkhozes and sovkhozes. As a result only some of the mixed feed for swine in 1985 was enriched with feed antibiotics. For calves, it is only added to mixed feed intended for calves raised at complexes and from 10 to 75 days old. Small amounts are produced for lambs up to 4 months old.

The situation with regard to feed antibiotics in mixed feeds should be corrected and brought into accordance with USSR Ministry of Agriculture Instructions.

At present many mixed feed plants are capable of undertaking the production of mixed feeds in quantities to guarantee farms sufficiently high levels of animal productivity. In this case, a mixed feed plant guarantees a farm the planned productivity for livestock feed mixed feeds, and farms pay higher prices for the feeds. This technological linkage of one production operation to another and their evaluation by final results is most completely in accordance with contemporary principles of economic policy.

All record setting indicators for productivity in animal husbandry are linked to the industrial production of mixed feeds and improvements in their biological completeness. There can be no doubt that in the future, as mixed feed quality improves, its huge role in improving livestock productivity and increasing animal product output will steadily grow.

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Deficiencies, Potential of Industry

Moscow ZHIVOTNOVODSTVO in Russian No 10, Oct 85 pp 34-38

[Article by E. I. Verkauskas, chief, Glavkombikorm [Main Administration for the Mixed Feed Industry, USSR Ministry of Procurement, and I. P. Dyakonov, director, VNII [All-Union Scientific Research Institute] for the Mixed Feed Industry] candidate of agricultural science: "The Quality of Mixed Feeds"]

[Text] The sixth issue of this journal contained the article by VASKhNIL Academician K. M. Solntsev, "Improve Mixed Feed Quality", which examines certain questions and problems in the production of complete mixed feeds. That author indicates that mixed feed industry enterprises are continuing to produce mixed feeds from obsolete formulas and do not produce enough protein-vitamin additives; a number of sectors in the industry are not processing enough secondary raw materials and valuable additives for mixed feeds (dried pulp,brewing waste, meat-bone and fish meal, and other items). Zonal and seasonal conditions are not taken into consideration in mixed feed production, therefore the concentrates produced are not always effective. Many mixed feed enterprises produce feeds for poultry, young pigs, cattle and other animals which do not contain enough minerals, vitamins and digestible protein. Therefore agricultural enterprises must enrich them, using scarce protein, mineral and vitamin additives. In a number of oblasts and republics interfarm mixed feed enterprises have been set up without sufficient economic substantiation. They do not work at full capacity and produce low quality feed. K. M. Solntsev's article caused a lively response from readers. Below are materials received by the editors.

The mixed feed industry is a component of the agro-industrial complex. This obligates workers in the mixed feed industry to direct their efforts towards strengthening the feed base for animal husbandry.

The journal ZHIVOTNOVODSTVO (No 6, 1985) published, for wide discussion, the article by VASKhNIL Academician K. M. Solntsev, "Improve Mixed Feed Quality," which justifiably stressed the important role of mixed feeds in improving the biological value of concentrated feeds, and in attaining high levels of productivity for agricultural animals and poultry.

The article examined key scientific and practical questions of mixed feed quality, revealed shortcomings and proposed measures directed towards attaining high growth rates in animal product output through sharp improvements in the efficiency of mixed feed production and use.

While supporting the business like discussion which has been initiated on problems of improving mixed feed quality and positively approving the author's main conclusions and practical proposals, we would like to stress that some of

the points in the article are in the nature of a discussion and are not indisputable.

Before dwelling in detail upon the questions raised, revealing the reasons for inadequate feed quality and substantiating directions for further work, it is fitting to briefly illuminate the current state of the mixed feed industry.

As is known, there are two organizational forms for mixed feed production -- at state enterprises in the USSR Ministry of Procurements or directly at farms and interfarm enterprises. Although their tasks differ substantially, these enterprises have the same goal -- produce complete mixed feeds.

Being the best equipped and improved form for the organization of mixed feed production, the state mixed feed industry is entrusted with its production using more complex equipment and formulas, in particular, for poultry, young agricultural animals, fish, fur animals and the production of carbamide concentrate and protein-vitamin additives.

Interfarm mixed feed enterprises should prepare mixed feeds and feed mixtures primarily for adult cattle, young animals being fattened, and for swine and sheep. They use less complicated technology and formulas and make maximum use of feed grains and local feed resources. Such specialization is scientifically based and economically justified.

However in practice, this principle of the rational combination of state and interfarm mixed feed industry is sometimes violated, reducing the efficiency with which mixed feeds and protein-vitamin additives are used. From the state mixed feed industry agricultural workers demand the production of all mixed feeds, even those which it is more economical to produce on the spot, that is, for feeding swine, cattle and sheep. At the same time, protein-vitamin additives produced at state enterprises and intended for the production of mixed feeds at interfarm enterprises are often distributed in small batches to kolkhozes and sovkhozes and fed in the form of additives to rations rather than being processed into mixed feeds. In general, the situation suffers. This practice can no longer be tolerated.

In the 12th Five-Year Plan it is intended to further increase protein-vitamin additive production at USSR Ministry of Procurement mixed feed enterprises. The use of industrial additives for this purpose makes it possible to considerably increase the production of complete mixed feeds at interfarm enterprises, save on feed grains and reduce feed costs per unit of animal products.

In determining the main directions for the sector's further development, mixed feed industry workers are placing primary attention upon improvements in technology and mixed feed quality. The necessary equipment has been created, a machinery-construction base for its production built, and the mixed feed industry reequipped through the installation of powerful units for the granulating of type DG mixed feeds. As is known,granulating helps improve mixed feeds' sanitary properties. Transportation losses are reduced and 1.5 fold less capacity and equipment is required for storage. In addition, steam

processing improves the sanitary condition of feed. Practice shows that 100 tons of granulated feed are equal to 109 tons of loose feed.

Therefore, more than half of the plants have been equipped with units for granulated mixed feeds. One out of 6 mixed feed plants has a processing line for putting fat into feed and one out of 3 for putting molasses into it.

By 1984 the production of mixed feeds at state enterprises had increased sharply compared to 1965. The production levels attained will annually save the country 19-20 million tons of feed grains.

However, it should be acknowledged that the development levels of state industry and the quality of mixed feeds produced cannot completely meet contemporary animal husbandry's growing demand. But this in no way means that, as the author asserts, the mixed feed industry has an insignificant role in improving animal productivity.

Studies show that in animal sectors where rations are based upon mixed feeds, they have a definite role in improving productivity. We give an example. Between 1965 and 1983, mixed feeds' share in total concentrates for poultry grew to 95.7 percent. Feed outlays per 1,000 eggs were reduced 2 fold on the average and egg production per hen increased more than 40 percent.

During this period broiler production increased sharply. Its feed base is complete mixed feeds produced by USSR Ministry of Procurement enterprises.

Mixed feeds also have an important role in improving production efficiency in swine raising complexes. Concentrates account for about 93 percent of total nutrients and 98-99 percent of this is mixed feeds. The use of complete mixed feeds at swine raising complexes reduced feed outlays per 1 quintal of swine growth by 40 percent compared to average outlays for swine production in the public sector.

Mixed feeds are also important in industrial aquaculture.

The main reason hindering improvements in the efficiency with which mixed feeds are used is the practice of allocating them to numerous small users, which is now widespread in face of sharply increasing shortages of mixed feeds. Naturally, if mixed feeds are not the basis for rations and are only irregularly fed, they do not produce the needed effect.

Often kolkhozes and sovkhozes do not use mixed feeds for their designated purpose. For example, mixed feed for swine is fed to poultry or small cattle, or visa versa. This is a faulty practice, and in some cases can cause animals to become sick.

Increases in the efficiency of mixed feed use require radical improvements in their production planning, and sharp reductions in the number of small batches.

The attachment of state mixed feed plants to large animal and poultry raising complexes has proven itself well. This helps in better meeting animal

husbandry's requirements and in steadily improving output quality. This should be expanded.

In recent years there has been intensive development in the use of specialized transportation equipment to centrally deliver mixed feeds to customers. Especially good results have been achieved in Estonia and Belorussia. Conditions have been created for establishing long term contractual ties between producers and consumers, for guaranteeing product quality and assuring the stable operation of mixed feed plants and the rhythmic supply of farms with feed, while reducing losses.

In order to expand centralized transportation, all mixed feed plants will have to be equipped with high capacity loading units suitable for new, high tonnage feed haulers. Farms will need special feed receiving units which can quickly weigh and unload vehicles and store the feed in reliable storage facilities.

Understandably, this does not exclude insufficiently high quality feed as one of the reasons delaying improvements in animal productivity.

The problem of improving mixed feed quality is becoming acute. There are a number of reasons, one of the most important being shortages of protein sources and their bad quality.

Improvements in the quality of mixed feeds and protein-vitamin additives depend mainly upon industry's supplies of protein sources, increases in the delivery of sunflower, cotton, rape, flax and soybean meal, seed legume crops, high quality, grass, meat-bone and fish meal and dried milk. Calculations show that if available local sources of these materials were efficiently used, then in the next 5 years shortages in the mixed feed industry could be halved.

There are extremely low delivery volumes of pulse crops, primarily peas, to industry. Their share in grain sources was only 0.9 percent, 10 fold lower than the optimal level.

In order to increase the production of complete mixed feeds it is quite important to find and rationally use additional resources of nontraditional raw materials.

At the All-Union Scientific Research Institute for the Mixed Feed Industry studies have been made of secondary products from enterprises in the sugar beet, starch-molasses, spirits, oil-fat, brewery, canning, produce drying, meat-dairy, vitamin and winery sectors of the food industry. This research has resulted in a determination of the production volumes and quality by region and of the economic advisability of using sugar beet pulp, brewers mash, dairy whey, meal from beet shavings, bones, cracklings, kaniga, sunflower seedcake [luzka], grape and apple pressings, and other products with technological properties making it possible to process them and put them into mixed feeds without additional costs.

Mixed feed plants in the GSSR are now effectively using meal from grapes, tomatoes, apples, pears and citrus fruits, wastes from tea, geraniums, basil and laurel.

However, not enough of most secondary products are processed in dry form, but fed to animals in their initial condition, or not used at all. We will examine a few examples.

Dry whey is an important reserve for increasing the sector's raw material resources. There is already knowledge of its processing qualities, food value, mineral and amino acid composition, and changes in these indicators during storage. Zootechnical experiments have established that feeding mixed feeds containing dry whey instead of fat free milk and sugar reduces feed outlays by 10-12 percent. Unfortunately, it must be said that enterprises in the Meat and Dairy Industry do not deliver much dry whey to the mixed feed industry, so the raw material base is insignificant.

The reason for this situation is the weak economic interest of enterprises in processing secondary material resources, equipment shortages and, in some cases, the lack of developed technology. It is necessary to sharply increase the production of nontraditional products and expand their assortment. This will make it possible to reduce grain use in mixed feed production.

As is known, carbamide is a way of making up for the protein shortage in mixed feeds for ruminants. The main difficulties in the use of carbamide have been solved through the industrial production of carbamide concentrate. However, in recent years there has been a tendency to reduce output because of sales difficulties. Some scientific workers and specialists at kolkhozes and sovkhozes have taken a negative position in this regard. In order to avoid negative phenomena involving the improper feeding of concentrates to animals, they have gone the route of refusing to use it.

As a result, some seedcake and pulp has been put into mixed feeds for ruminants, while at the same time mixed feeds with reduced protein content are being produced for swine and poultry. In our opinion, carbamide concentrate is a reserve for reducing the protein shortage in animal husbandry and more attention should be paid to its production and use.

Enrichment with premixes and biologically active substances is a way of producing complete mixed feeds. However, in spite of sufficient volumes of some types of raw materials, the mixed feed industry's requirements for most vitamins, microelements and other substances are not met.

The vitamn and chemical industry supplies the sector with forms of vitamins and microelement salts which are unstable, not suited for processing and which tend to cake. Vitamins and potassium iodide easily break down in products and liquid forms of choline chloride have a negative effect upon a long list of

biologically active substances. They must be improved to a condition assuring normal production. Suppliers of these materials should develop technologies for obtaining dry, stable feed forms of preparations.

The question of rationally distributing raw material for mixed feed production deserves special attention. It is essential to reach a state of affairs where protein containing raw materials are first of all delivered to state mixed feed enterprises. This will help increase mixed feed completeness.

An important condition for the production of good quality mixed feeds is the availablility of raw materials meeting the requirements of scientific-technical documentation. Raw material suppliers have not solved this problem and allow lagging from quality indicator norms (increased content of cellular tissue, reduced raw protein content, and impermissibly low carotene content). The delivery of raw materials which do not meet quality standards considerably complicates the work of mixed feed enterprises and in some cases makes it simply impossible to put such material in mixed feed. It should be kept in mind that the sector processes more than 100 types of raw material and naturally cannot perform operations which should be done by enterprises supplying the raw materials, such as pulp drying, hydrothermal treatment of fish and meat-bone meal, drying minerals.

Therefore, supplier enterprises in the USSR Ministry of Agriculture, the USSR Ministry of the Fish Industry, the USSR Ministry of the Meat and Dairy Industry and Main Administration for the Microbiological Industry should take measures to see that material delivered for mixed feed production meets quality norms.

High agricultural animal productivity is attained through the supply of mixed feeds with the appropriate nutritional value and biological completeness. The level of nutritional value is determined by existing norm-technical documentation (GOST [State standard] OST [Sector standard], TU [Technical condition]) for mixed feed industry output, which do not regulate the selection of mixed feed components, but only establish the level of nutritional value. The development of new and the review of existing standards is under the control of the USSR State Committee on Standards and is closely linked to agricultural scientific research institutions and their recommendations. Therefore, one cannot agree with K. M. Solntsev's statement that the sector is working according to obsolete GOSTs.

At present the list of quality indicators approved by the USSR Ministry of Procurement (1984) includes 24 designations, including energy feed unit. GOSTs are followed with a view to the interreplaceability of various types of raw materials and the simultaneous observation of maximum norms for inclusion in mixed feeds for various animals and birds, agreed upon with USSR Ministry of Agriculture scientific research institutions.

In the mixed feed industry formulas are calculated with the help of computers, making it possible for mixed feed enterprises to effectively use available raw materials by compiling the appropriate formulas, taking into account component quality, animal requirements, the season, production technology and other factors.

The use of computer technology meets contemporary demands. Under conditions of operational management of production it is impossible to manually calculate several formulas per shift, in the process meeting all requirements of standards for mixed feed quality (production volume for each formula, level of raw material quality), technological constraints at each enterprise, norms for component content, and finally, the fulfillment of economic indicators (optimal cost of finished product). Without computers technical progress cannot be accelerated, manual labor reduced, or its productivity and product quality improved. Today everybody is convinced that there can be no return to the previous methods of using formulas.

For more than a decade now, mixed feed plants have been using formulas calculated by computer and using contemporary recommendations of agricultural science. For this purpose dozens of large computer centers have been set up at the USSR Ministry of Procurement.

Of great interest are formulas for reduced protein swine feeds and cattle feeds where some of the protein of animal origin and grain has been replaced (they are discussed in the article by Academician K. M. Solntsev). However, industry has not suggested any such formulas. On the other hand, in interpreting the principle of savings in protein feeds it was said that formulasK 60-6 and K 60-7 for dairy cows make provisions for the introduction of 45-69 percent protein feeds. In accordance with mixed feed formulas and instructions for their use (1972) they include 5-14 percent protein components (seedcake and pulp), while formulas K64-1 and K64-2 mixed feed concentrates for young cattle (more than one year old) and K64-3 for cattle feeding contain 57-42 percent and 17-30 percent respectively.

Technological measures directed towards improving the biological value of grain and seed legume components have a major role in improving mixed feed quality. In addition to traditional methods for preparing raw materials, the VNIIKP [All-Union Scientific Research Institute for the Mixed Feed Industry] has conducted comprehensive research on new methods for grain processing in mixed feed production. There have been studies of various methods in the thermal and hydrothermal processing of grain: roasting, steaming and rolling (flaking), heating by infrared radiation and rolling (micronization), convective heating, extrusion and other methods in various combination. The technological and engineering potentials of these methods have been determined, and comparative techno-economic evaluations made. It has been established that under specific conditions these methods improve nutrient assimilability, feed quality and, in the final account, the return on feeds. The institute is conducting further work on the production introduction of rational methods of feed processing. It should be noted that all these methods increase production costs and consequently, product costs. The customer, on the other hand, does not want to pay a price mark-up. During research on grain extrusion at an experimental mixed feed combine, a program was drawn up and agreed upon. This involved the extensive production testing of mixed feed with extruded grain components for a large herd of young piglets (aged 9 to 100 days), suckling pigs and sows. However, because the Kuznets Animal Husbandry Complex did not want to pay a 11.7 ruble per ton mark-up for extruded grain,

the experiments had to be conducted in considerably reduced form, with the mixed feed plant paying the costs.

A number of feed preparation methods, for example, preparing grain flakes, should be introduced at feed use sites directly prior to feeding. This is due to feeds' low processing qualities: poor friability, caking, impossibity of long term storage. Treatment by infrared radiation, in which the radiation source reaches 500-700 degrees C cannot be used at state mixed feed enterprises because of fire safety rules. Also, there is not yet equipment available for micronization.

In the near future at state mixed feed enterprises use will be made of moisture and heat treating and extrusion of grain for mixed feeds for young animals.

Under the conditions of the agro-industrial complex the system of economic ties between mixed feed enterprises and customers requires improvement. It is necessary to link the results of mixed feed enterprise work with final indicators for the use of mixed feeds at animal husbandry complexes and poultry factories. One of the most suitable forms of this linkage (proposed by VNIIKP) -- is stimulus to mixed feed plants to attain agreed upon planned outlays for feeds in physical and monetary terms per unit of animal product output and to reduce these outlays. Animal husbandry complex (poultry factory) profits obtained through feed savings could be a source for this stimulus. Agricultural science could give specific suggestions on this question.

The mixed feed industry's role in improving animal productivity and the rational use of feed grains will grow with further increases in mixed feed production and improvements in quality. However, a guarantee of attaining high animal productivity depends not only upon mixed feed quantity and quality, but also upon organization, use and many other economic factors. Consequently, the question of a guarantee of animal productivity and equally of feed outlays per unit of output are outside the framework of mixed feed plants. This is obvious both from a scientific and a practical point of view when it is taken into account that animal productivity is determined not only by product quality, but also by nutritional levels, livestock and poultry living conditions, organizational and soil-climatic factors, veterinary and sanitary conditions at farms and labor and technical discipline in collectives.

There should be a separate examination of the development and introduction of processing equipment for the mixed feed industry. Such equipment is important in determining mixed feed quality, especially with regard to indicators such as the degree of chopping, and pellet uniformity, friability and water resistance.

In recent years highly productive equipment for chopping grain (crushing mills, scale dosage meters, pellitizers) has been developed for the mixed feed industry. However, an evaluation of the technical standards of the equipment being operated shows that it is more metal and energy intensive than better foreign models and has low operational reliability. For example, because of the unsatisfactory operation of their cleaning sieves, the ZSP-10 separaters for sifting pelleted mixed feed are ineffective. The productivity

of the A-1-DES for removing tramp metal from nonfriable mealy raw materials does not exceed 6 tons per hour. By no means all of the processing and transportion equipment delivered to the mixed feed industry is appropriate to the requirements of automated process control systems. This delays the introduction of computers. Therefore, industrial sectors supplying equipment must work to sharply improve the technical standards and reliability of the equipment they deliver to the mixed feed industry.

Solutions to these problems, directed towards improving mixed feed quality, will help increase the production of animal products.

The performance of these tasks is the goal of a comprehensive program for mixed feed standardization developed in the sector. This is part of the standardization, according to final type of output, of complete mixed feeds for agricultural poultry, complete mixed feeds and mixed feed concentrates for swine, cattle, horses and fish. The requirements for the standard proposed by USSR Ptitsprom [Main Administration for the Poultry Raising Industry] includes individual parameters on the nutritional value of mixed feeds for egg and meat birds, taking the new age and sex gradiations into consideration. There are provisions for norms for energy intakes, ammino acid and mineral nutrition in mixed feeds for sire boars, suckling pigs up to 2 months old, replacement animals and also gelds, and sows with farrow. The seasonal norms for protein content in the products for cattle approved for standardization are regulated: lower in the summer and higher in the winter.

Widespread scientific-technical progress improved levels in the classification of cadre in the mixed feed industry. A large program is under way to build sector professional-technical academies for training workers in the mass professions. A large set of measures to introduce progressive norms for production organization, and to increase responsibility, order and discipline at each work place is also being implemented. In these we see fairly big reserves for improving product quality.

State mixed feed industry workers are confident that by cooperating with agricultural specialists and scientific workers and with raw material and equipment suppliers they will be able to satisfy animal husbandry's requirements for highly efficient mixed feeds.

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REGIONAL DEVELOPMENT

ESTONIAN COUNCIL OF MINISTERS HEAD ON S & T DEVELOPMENTS IN APK

Tallinn SOTSIALISTLIK POLLUMAJANDUS in Estonian No 16, Aug 85 pp 1-4

[Article by Bruno Saul, chairman of the Estonian SSR Council of Ministers: "Scientific-Technical Development Gathers Speed"]

> [Text] "It is necessary to make agriculture as receptive as possible with respect to scientific-technical progress and to assure the vital interest of all segments of the national economy in it..." --from a speech by Comrade M.S. Gorbachev at a CPSU Central Committee conference on the issue of speeding up scientific-technical progress

The 45th anniversary of the Estonian SSR was celebrated this year. It is therefore opportune to take a glance at the past. In place of bourgeois Estonia's 140,000 farms, we now have roughly 300 kolkhozes and sovkhozes, 37 interfarm organizations, and 76 other state agricultural enterprises. All of them are large-scale enterprises of socialist agriculture well-equipped with machines, and they operate at a profit. There are currently less than one-third as many workers in Estonian agriculture as there were at the end of the 1930s, but we are getting twice as much production. The social countenance of rural life and people's cultural and living conditions have changed.

In general, we no longer speak about agriculture as one narrow branch of the economy but about the agroindustrial complex, which includes the industrial manufacture of agricultural products, their processing, and in many cases also their marketing in a unified economic system. Hence the new form and content of our entire agroindustrial complex, which has undergone a social and scientific-technical revolution in the course of these years.

So how does the Estonian agroindustrial complex depict itself nowadays, and what are its reserves like, its prospects for development?

In recent times, the Communist Party and the Soviet government have focused particular attention on the manufacture and processing of agricultural products, singling this out as a branch of the national economy for preferential development. On this occasion, I would indicate only three forums:

--The May 1982 plenum of the CPSU Central Committee approved the USSR nourishment program and solved many problems of economic mechanism and agricultural development;

--The October 1984 plenum of the CPSU Central Committee outlined a long-term soil amelioration program and the efficacious use of improved soils;

--The April 1985 plenum of the CPSU Central Committee and the conference which followed it in the CPSU Central Committee in June of 1985 established a schedule of first-aid measures for accelerating scientific-technical progress in our national economy as a whole.

In order to carry out the resolutions of all these forums, similar efforts have been made in our republic, and concrete programs of implementation have been planned for the years 1985-1990 and--in a longer perspective--up until the year 2000.

On the basis of the foregoing, the quantitative limits of agricultural production have been established by the republicwide nourishment program, which predicted an average yearly yield of 210,000-215,000 tons of meat, 1.2-1.3 million tons of milk, and 1.4-1.5 million tons of grain during the 11th 5-year plan. We must confess, unfortunately, that for many subjective and objective reasons we did not achieve these goals. At the same time, it is a pleasure to announce that since 1983 we have regularly fulfilled the plans for buying up agricultural products, and the probable indebtedness of the annual plans of the 11th 5-year plan (meat 40,000 tons, milk 50,000 tons, and potatoes 100,000 tons) is due to the failures of 1981 and 1982. The 1985 production level also measures up to the scheduled figures in the 11th 5-year plan (animals and poultry, fruit and berries).

Despite the level attained, our nourishment program has lagged behind, primarily in the realm of grain and meat production. The tasks of the 12th 5-year plan, which are in harmony with the nourishment program, are very exacting: 235,000-240,000 tons (in deadweight) of meat, 1.3-1.4 million tons of milk, and 1.5-1.6 million tons of grain must be produced.

What then is the key to the solution of this task? It can only be the speedup of scientific-technical progress in the agroindustrial complex as a whole and--on this basis--the further development of production relations and efficient manpower to assure the achievement of established goals.

Before I speak about the acceleration of scientific-technical progress in plant cultivation and animal husbandry, allow me to characterize in a few words agriculture's scientific-technical potential as a whole.

Roughly 4,000 workers from 15 institutes of scientific research and bureaus of special design are on the staff of the agroindustrial association. Among them are more than 30 doctors of science and 400 masters of science. Actively participating in various ways in the realm of agricultural studies are our republic's higher educational bodies (Estonian Academy of Agriculture, Tallinn Polytechnical Institute, Tartu State University) and the institutes of the Estonian SSR Academy of Sciences (Institute of Chemical and Biological Physics, Institute of Cybernetics, Institute of Economics, Institute of Chemistry, Institute of Experimental Biology, etc) as well as various institutes of scientific research (Institute of Construction, Institute of Oil Shale Chemistry, etc). The efforts of all these organizations are coordinated by a government-approved program of

scientific-technical progress until the year 2005 and by other programs of scientific-technical goals. The work is currently coordinated by the scientific-technical council of the Estonian SSR Agroindustrial Association.

Hurrying on, it can be said that the work efficiency of our scientific organizations increases steadily. If, for example, in the year 1981 each ruble spent at the Estonian Institute of Agriculture yielded an economic effect of 5 rubles, the effect was 9.2 rubles in the year 1984. The same indicator was 6.9 and 8.3 rubles at the Estonian Institute of Animal Husbandry. This is good, though there are still ample internal reserves (especially the reduction in splintering of manpower and the concentration of materials). Our new research in agriculture must all the while take into account the objective conditions, of which I would like to bring up the following:

(1) the soil as the primary means of production is relatively poor in humus (1-2 percent) and rich in stones--82 percent of intensively exploited arable land is stony (in a plowing depth up to 400 square meters of stone per hectare);

(2) we certainly live in the temperate zone with respect to climate, but the sum of effective temperatures (1200 degrees Centigrade) is insufficient for vegetation, and the climate is comparatively moist (there is too much rain during the harvesting period);

(3) only 12 percent of our working population has stayed in the countryside, and therefore on the farms an average of 13.4 mechanizers are needed per 1,000 hectares of cultivable land on a scientifically based norm of 16-18.

If the first factor primarily determines the characteristics of agricultural techniques and the sown fields' structure and the second factor (climate) determines plant cultivation research and the workload technology for agricultural labor, then the third (manpower) regulates the demand for maximum labor productivity.

How are these demands met at present and how, in particular, will they be met in the future?

First and Foremost From the Soil

The October 1984 plenum of the CPSU Central Committee was devoted precisely to increasing soil fertility and reducing agricultural production's dependence on weather conditions.

As is known, the Estonian SSR's soil stock comprises 4.52 million hectares, of which 1.48 million hectares are arable land. A farm's average arable land is 3,000 hectares. The foundation for a new drainage network was laid in the Estonian SSR between 1966 and 1984, or old ones were rebuilt over a stretch of 620,000 hectares, and drainage and water-supply work was done on 525,000 hectares. This is a major contribution to increasing soil fertility.

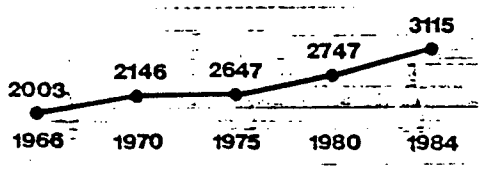
There are several farms (the Parnu rayon's "Edasi" kolkhoz, the Tartu model sovkhoz, etc) where more than 5,000 food units per hectare are today obtained from the improved soils. But there are also opposite examples in which less than half the average yield is obtained from the improved soils.

Implementation of the impending amelioration program in our republic provides for drainage work on 85,000 hectares and water-supply and drainage work on 125,000 hectares during the 12th 5-year plan. Irrigation systems will be built and reconstructed on 3,000 hectares. This is a major program, and in the year 1990 we should obtain 790,000 tons of grain (NB: this is 50 percent of the total harvest) and 1.11 million ton feed units of fodder from these soils.

In the elaboration of new drainage systems, the rise in soil quality, and the improvement of work efficiency we would like to see an increasing role for the institutes "Agriculture Project" and "Soil Amelioration Project" in the management of the above-enumerated jobs in collaboration with the Estonian Institute of Agriculture and other associated enterprises, including the "Talleks" association.

But there still remain the removal of stones (30 percent of the volume of spring work), protection against erosion, the enrichment of plowlands with organic and mineral fertilizers, etc. Scientists claim that if soil amelioration increases the harvest 20 percent, then proper fertilization will increase it 50 percent. The complex exploitation of the entire agrotechnical arsenal is therefore necessary in order to increase soil fertility. Its effectiveness is demonstrated by Diagram 1, in which is given the average productiveness of field crops in food units per hectare in our republic at intervals of several years (grain + potatoes + fodder crops).

Diagram 1. Productiveness of EsSSR Agricultural Crops in Food Units Per Hectare.



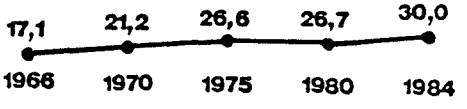
Productiveness of this kind is realized by raising the capacity of machines in agricultural work. Although our agricultural worker's energy supply has grown to 10,500 kilowatt-hours in 1984--which has helped to increase the productivity of the republic's farmer to 12,000 rubles a year--we are not satisfied with the entire agrotechnical machinery's suitability to our requirements.

The Estonian Institute of Agriculture and its SKB [expansion unknown] have done great work in creating new agricultural machines and in adjusting mass production for our plowlands. Their production is organized in EPT [expansion unknown] enterprises. More than 30 new structures have been worked out here since 1975. Approximately 7,500 different machines have been produced for working on stony fields (stone-clearing machines, plows, cultivators, sowing machines), over 3,000 machine units and devices for storing and transporting fodder, etc. The economic effect of this work amounts to a yearly average of 2-6 million rubles during the interval 1975-1984 (8 million rubles in 1984). All this is good but more is needed. This work must be intensified, and the appropriate material-technical production base must be created in the republic. The issue was expressed precisely so and at the same time it found support at the 30 June 1985 session of the agroindustrial and scientific-technical committees of both chambers of the USSR Supreme Soviet, when the Estonian SSR Council of Ministers report was heard on the work of speeding up scientific-technical progress in the agroindustrial complex. The facilities for realizing this proposal must, however, be allocated by the Estonian SSR State Planning Committee together with the Estonian SSR Agroindustrial Association.

The other key question in the further development of plant cultivation is seed growing and the elaboration of intensive technologies for producing grain, potatoes, fruits and vegetables, and fodders.

The Estonian Institute of Agriculture together with the Institute of Experimental Biology of the Estonian SSR Academy of Sciences has good achievements in plant breeding. As early as the 10th 5-year plan, 12 varieties of various plant crops were bred and introduced into production. Today 40 varieties have been bred in in our republic at the above-named institute. Diagram 2 provides an overview of grain productiveness.

Diagram 2. EsSSR Grain Productiveness in Centners Per Hectare.



Has the peak been obtained? Not by a long shot! Grain productiveness is strikingly high right now at several farms: in 1984, 50.7 centners per hectare at the Vaike-Maarja kolkhoz, 46 centners per hectare at the "Vambola" kolkhoz, 44.4 centners per hectare at the Tartu model sovkhoz, etc.

The situation is similar in potato cultivation, where in 1984 the average productiveness (183 centners per hectare) could not by any means be considered satisfactory because at the same time 358 centners of potatoes per hectare were obtained at the "Vambola" kolkhoz, 357 at the "Poder" sovkhoz, and 332 at the Sangaste kolkhoz.

I would like to separately emphasize the need for a speedier development of vegetable and fruit/berry production, because with regard to these very crops our dining table remains meager: we satisfy 60-70 percent of the need.

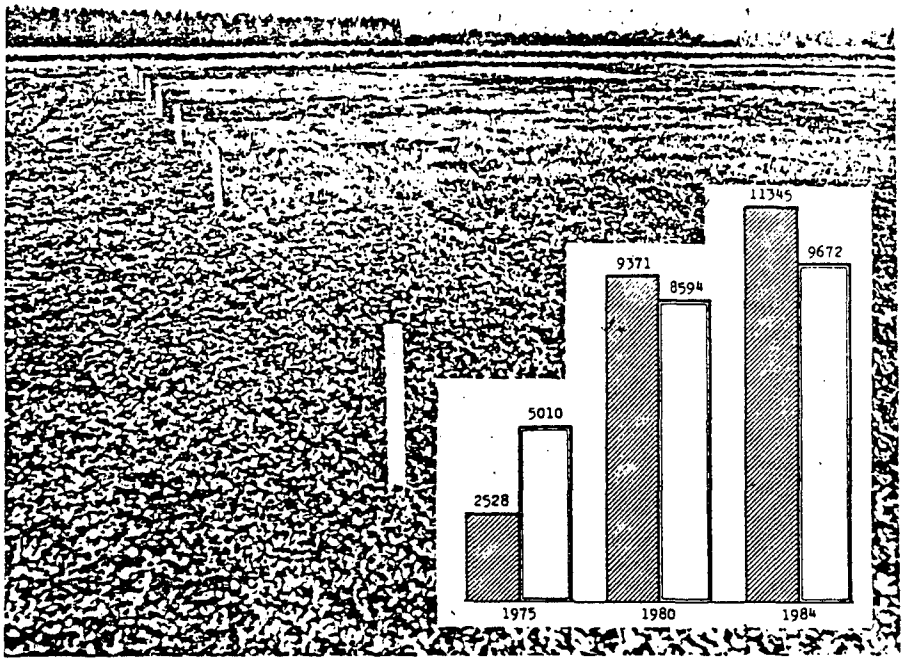
Hence the tasks for the Estonian SSR Agroindustrial Association, the Horticulture Ministry, the ETKVL [expansion unknown], and, of course, science to sharply improve the population's supply of fruits and vegetables.

Considerable work is done here on fodder production, which has turned into an independent branch of manufacturing. In order to implement the nourishment program, we must produce per animal 10 kilograms of green feed (desiccated food) with a crude protein content of no less than 14 percent. Is it feasible? We believe it is. In order to solve these complex questions, the republic's government in May of 1985 posed tasks for scientists at the Estonian Institute of Agriculture, tasks which could briefly be characterized by the following statement and figures:

--Breed and introduce new varieties of agricultural crops in order to satisfy the republic's manufacturing conditions for potential productiveness in the next few years:

rye, wheat, barley, oats	60-80	centners per hectare
peas	30-40	" "
potatoes	300-400	" "

Science Has Turned Into an Immediate and Productive Force



Energy Supply of Estonian SSR Agricultural Worker in Years 1975, 1980, and 1984 in Sovkhozes (Hatched) and Kolkhozes

With green feed we must obtain 100-120 centners of desiccated food per hectare. If the considerable protein shortage amounts to 138,000 tons in the year 1990, a complex program of fodder-protein production must be implemented in full. All this is a major and responsible job the success of which depends first and foremost on teamwork between scientists and practitioners. At the same time, we must continue the struggle to reduce manpower consumption and to lower production costs (at present, 1.1 hours of human work are consumed in the production of 1 centner of grain, 1.6 hours for 1 centner of potatoes, and 3.6 hours for 1 centner of vegetables.)

The third major issue in plant cultivation is biotechnology and plant protection. The accomplishments of our republic's scientists in this realm are also recognized outside the boundaries of the republic. It is therefore especially important to continue and intensify the research directed at the struggle against weeds, plant diseases, and plant pests with the resources of modern-day chemistry and biological science. The introduction of biotechnology to cure viral diseases of fruits, berries, and flowers demands particular attention. By utilizing all the resources in this field we expect a 3-10 percent increase in productiveness (as much as 35 percent with potatoes) whereby the total economic effect from the use of biological pest-control agents has risen from 23,400 rubles during the years 1966-1970 to 886,600 rubles during the years 1981-1984. In the future, however, it will increase even more.

Tasks in Animal Husbandry

What then are the key questions of scientific-technical progress in animal husbandry? More meat, milk, and eggs with less consumption of resources--that is the main task. Indicators of total agricultural production were given above. Here I would like to focus attention on only one distinctive indicator in animal husbandry. If the average milk production of an Estonian cow was 1,976 kilograms in the year 1940, then this year it comes to 4,000 kilograms and under conditions in which the farm has 865 cows. Meat production has increased threefold and egg production fivefold during the same interval. Elaboration of a scientific-rational animal husbandry system and its realization on the basis of extensive specialization and concentration has been successful.

The primary item in this scientific system is, however, pedigree breeding. Work in this field is directed by the Estonian Institute of Animal Husbandry, the "inheritor" of the long-term and intricate work that has been done here consciously for over 100 years. As a result of this, practically our entire herd of cattle is purebred. Both breeds have high milk-yielding potential and good meat-quality characteristics. Starting in 1956, there was a switchover to artificial insemination, and the deep-frozen sperm of improver bulls is used. Continuous control of the milk's fat and protein content and calculation of the cow's productivity is done by electronic computers.

All this makes it possible to continue the search for even more productive individuals in one or the other breed of cattle. So on the basis of data from the Vandra experimental station the output of "supercows" Koll and Ats is 15,563 and 14,938 kilograms of milk during a 305-day lactation period. At the same time, the fat content is 4.3 and 4.9 percent, and the protein content 3.2 and and 3.5 percent. As a result of this, our scientists are faced with the task of delivering in the near future a cow with an average milk output of 6,000 kilograms. On the agenda is the transplantation of embryos of high-yield cows into gestating cows, which will make it possible in the future to obtain up to 25 calves a year from one cow. This praiseworthy work must be supported in every way, and a biotechnology center must be created in Tartu for intensifying biological research by uniting the efforts of scientists from the Estonian Institute of Animal Husbandry, the Estonian Academy of Agriculture, and other institutions.

We are also making progress in the pedigree breeding of pigs. The large Estonian white pig guarantees a big increase in mass: with controlled overfeeding, 700 grams in a 24-hour period or 100 kilograms in 160 days.

Praiseworthy work is also being done by breeders of sheep, poultry, and horses.

The second major problem must be considered the organization of production on the principle of expanded socialist renewal of production. Support for optimal developmental relations, intensive and extensive, in our circumstances is hereby a requirement for organization of production. Intensive development alone does not guarantee the necessary expanded renewal of production nor the certainty of production.

The main components in the organization of production are fodders and their structure, feeding and milking technology, microclimate in the cow barn, etc. An industrial technology--one which comprises 283 milk production complexes and in which 50 percent of the dairy cattle are located--has been introduced here for milk production. There has been a lot of debate about large farms, as there has about every issue. Here, too, there is an optimum which depends on the concrete circumstances. Up until now, unfortunately, the milk production of cows on large farms has fallen short of the average. Feeding expenses in the production of cattle-breeding products are depicted in Table 1.

Table 1. Feeding Expenses in Milk and Beef Production in Estonian SSR (Food Units Per Centner)

Item	1965	1970	1975	1980	1983
Milk	104	108	108	111	108
Fattening Cattle for Meat	790	773	716	894	861

As we can see, feeding expenses for milk production have stabilized, and the main emphasis must here be placed on reducing the role (roughly 37 percent at present) of concentrated fodder in favor of protein-rich green feed. Increasing the relative importance of homemade fodders in cattle breeding (for milk production) makes it possible to sharply raise the production of pork with the available concentrated fodder, in which 560 food units are consumed for a centner of pork. The focus of attention in the work of scientists and practitioners must always be production cost and manpower consumption (see Table 2). Are there still reserves here? There are--first and foremost on low-profit farms. The rayons' agroindustrial associations should focus special attention on precisely these farms.

Table 2. Economic Indicators of Animal Husbandry in Estonian SSR in 1984

Item	Production Cost (Rubles Per Ton)	Manpower Consumption (Man-Hours Per Centner)
Milk	253	3
Mass Increase of Pigs	1400	9
Mass Increase of Cattle	1700	16

The third major problem of animal husbandry is the effectiveness of veterinary service. Under the conditions in which most animals are congregated on large farms and interfarm pig factories, the fulfillment of hygienic requirements, disinfection, and the battle against diseases are very responsible work. It is true that thanks to the effective work done so far animal diseases such as brucellosis and tuberculosis have been wiped out in our republic. The efficacious disinfectants "Mastisteriil" and "Estosteriil" have been developed. This work must be continued.

By way of conclusion: everything discussed is tied into a single whole by the economic mechanism which is not, however, some static structure but a set of scientifically based economic links between productive forces and production relations. Even under advanced socialist conditions, these relations change constantly and therefore require the uninterrupted attention of our economists

and, as a result, the continuous improvement of the economic mechanism for agricultural production (planning, incentives, price policy, etc). In this respect, as everyone knows, our republic's agroindustrial complex has operated under experimental conditions: starting in 1975, when the Viljandi Rayon Agricultural Association was formed (all the rayons switched over to this structure in 1981), and ending with the formation of the Estonian SSR Agroindustrial Association in 1983. Concern about improving the management of the agroindustrial complex is constantly at the center of attention of the republic's government and the Estonian Communist Party Central Committee. This complex includes production machinery and buildings worth more than 2.5 billion rubles and provides the people with food on their tables every day.

The new management structure has justified itself so far, and consequently there is no turning back. All the roads in the economic field are open, however, for new endeavors. So let scientific-technical progress have the final word here.

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AGRO-ECONOMICS AND ORGANIZATION

PASKAR ON APK PLANNING, MANAGEMENT

Moscow EKONOMIKA SELSKOGO KHOZYAYSTVA in Russian No 6, Jun 85, pp 8-18

[Article by P. Paskar, first deputy chairman, USSR Gosplan: "Improve the Planned Management of the Agro-Industrial Complex"]

[Text] The planned development of productive forces is an integral feature of the socialist system. In the USSR Constitution it is stressed that the management of the economy is based upon state plans for economic and social development, with consideration given to sectorial and territoria principles, and combining central management with economic independence and initiative for for enterprises, associations and other organizations.

The question of central plan leadership is a key one in the theory and practice of socialist construction.

V. I. Lenin considered the presence of a single national economic plan as a very important condition for the state management of the socialist economy. He wrote of the necessity of transforming the "entire state economic mechanism into a single large machine, an economic organism working so that hundreds of millions of people are led by one plan..." (Poln. sobr. soch. t 26, p 7).

It goes without saying that centralism and the Leninist understanding in no way mean that all economic questions should be solved only in the center and that "localities" are given only the role of executors. In revealing the essence of the Leninist principle of democratic centralism, the Communist Party always stresses the need for close combination of centralized state leadership with the maximum development of all workers' initiative and creative activities.

At the March and April (1985) CPSU Central Committee Plena, special stress was put upon rapidly moving to the cutting edge of science and technology and to the highest world levels in the productivity of social labor.

In order to more successfully and rapidly solve these tasks there should be further diligent improvements in the management system and in the entire economic mechanism. In moving along this path and in selecting optimal solutions, it is important to creatively use the basic principles of socialist economic operations. These are the unwavering strengthening of socialist property, the development of a centralized foundation for the solutions to

strategic tasks, the expansion of enterprises' rights and increases in their independence and responsibility, strengthening their interest in the final work results, that is, in the final subordinating all economic development to the interests of the Soviet people.

Greater requirements are being made upon planning -- the central link of management. At the April (1985) Plenum it was pointed out that planning should become an active tool for production intensification, the implementation of progressive decisions and in assuring balanced and dynamic economic growth. At the same time enterprises and association plans should be freed from excessive indicators and wider use should be made of economic norms giving ample initiative to entrepreneurial abilities.

Thus, the party views further improvements in planned management and in the economic mechanism as a whole as necessary conditions for the growth in social production and in improving its efficiency and for the more complete utilization of the advantages and potentials of developed socialism. These party instructions are of fundamental importance for further developments in the theory and practice of socialist state management.

Time and the specific achievements of the Soviet economy have proved that Leninist principles of planning are a reliable basis for the CPSU's social and economic policies.

Taking into account the specific conditions and tasks of socialist construction, the party is constantly perfecting forms and methods for the practical embodiment of these principles.

As our socialist society develops, the content of these principles is enriched, but their essence remains unchanged. Above all this includes: party mindedness, democratic centralism, and the combination of long term and current, sectorial and territorial principles in planning the national economy.

Over recent years planning, as the heart of management, has experienced significant changes which are mainly directed towards bringing the entire economy into correspondence with the increased level of productive forces and production relations, more complex intersectoral ties, a regional division of labor, and other factors.

It is important to note that the party and government place special significance upon improvments in the planned management of the agro-industrial complex, which has one of the leading roles in the socialist economy. More than 48 million people are working in it, it has more than 30 percent of the country's fixed productive capital. One-third of the national economy's capital investments are allocated to the APK. The agro-industrial complex is closely linked to other elements of the economy and has a great influence upon their efficiency and development rates. This is mutual, about 90 percent of agriculture's fixed productive capital is produced by industrial enterprises.

Naturally, this should have the appropriate returns. One must state that they are not inconsiderable today. Agriculture accounts for 28 percent of the country's national income. Output from the agrarian sector and industrial goods processed from agricultural raw materials provide approximately 95 percent of the food products and make up more than 70 percent of the trade turnover.

All this convincingly shows how high is the responsibility of APK collectives for the economical and effective use of existing funds, material and labor resources, for the very rapid switching of the complex's sectors to the intensive development track and the successful solution to the country's foodstuffs problem.

This can be done only through constant improvements in equipment and technology, the elimination of disproportions and bottlenecks and the introduction of an effective method for economic operations.

The creative search for rational methods of plan leadership and management is a very substantial factor in the conversion to intensive production. This is understandable. During the course of social and economic development the scientific and technical revolution has an intensified effect upon structural shifts in the national economy, and consequently in the agro-industrial complex and upon the efficiency of social production. Economic linkages become more complicated and increased requirements are made upon key personnel.

One should note that within the overall process of improvements in the planned management of the country's economy there is quite active modernization of the planning of agriculture -- the central element in the APK. This took place in the 1950's and the 1960's, but a qualitatively new level began in 1980, when the CPSU Central Committee and the USSR Council of Ministers approved the decree "On Improvements in Planning and Economic Incentives for the Production and Procurement of Agricultural Products." It defined a whole set of measures for improvine planning work and assured that plans would balance production and state procurements with material-technical supplies, financial resources, fixed productive capital and capital investments. Special attention was given to see that simultaneously with targets for purchases, kolkhozes and sovkhozes were delivered tractors, trucks, combines, fertilizer, herbicides, fuel, other resources and limits on capital investments.

In order to restrict subjective decision and improve the scientific basis of plans, the decree contains requirements for more operational development and prompt reexamination of norms and normatives and their wide use for planning agricultural development at all levels.

It was deemed necessary to restrict the number of indicators centrally set for farms and, above all, to get rid of multiple plans. Specific measures in the decree help orientate labor collectives to attain high final results.

The USSR Food Program, and the CPSU Central Committee and USSR Council of Ministers decree "On Improvements in the Management of Agriculture and other Sectors of the Agro-Industrial Complex" are exceptionally important for the perfection of planning and management. Materials in the May (1982) CPSU Plenum note that the preparation and implementation of the Food Program was a fundamentally new step in the management of the socialist economy. The program embodies a comprehensive approach to the solution of the food problem.

The delineation of the agro-industrial complex as an independent object of planning and administration will permit the more effective combination of the principles of territorial, sectoral and program-objective planning, which are based upon final results -- continuously supplying the country with foodstuffs. The organs of APK management (commissions) created at the all-union and republic level coordinate the activities of ministries and departments in the agro-industrial complex.

In order to improve the structure of management within the USSR Minsel'khoz [Ministry of Agriculture], USSR Minvodkhoz [Ministry of Land Improvement and Water Resources], USSR Minzag [Ministry of Procurement], USSR Minplodoovoshchkhoz [Ministry of the Fruit and Vegetable Industry] and Goskkomsel'khoztekhnika, more then 3,200 trusts, associations and other organs of the middle level of management were eliminated. About 5,000 sovkhozes subordinate to the eliminated trusts and associations were included in rayon agro-industrial associations (RAPOO. The number of workers in the management apparatus was reduced by more than 93,000 and its maintenance expenses were reduced by 160 million rubles.

There were also improvements in the management structure of the processing sectors of industry.

The Food Program's key directions are further improvements in the efficiency of both agriculture and the industrial sectors linked to it, and the decisive conversion to primarily intensive factors in growth, improvements in the use of land, production capacity and labor and financial resources.

With a departmental approach, basically from the levels attained, the development and linkage of development plans for sectors in the agro-industrial, did not solve intersectoral problems. Above all, this hindered the redistribution of capital investments and material-technical resources between sectors in the complex, leading to inertia and disproportions a sectors boundaries.

An analysis of APK development shows that great reserves for increasing production volume and efficiency lie in the linkages between sectors and can be used to eliminate disproportions between them. The main one is the incomplete supply of agriculture and processing industry sectors with the means of production in amounts and structure appropriate to the size fo the area being served, the herd, production volumes, reliable transportation,

storage and processing, especially during "peak" periods. Thus, kolkhozes needs for tractors are only 80 percent met, for motor vehicles the figure is 85 percent , for mineral fertilizers --78 percent, and for chemical means of plant protection 49 percent.

In the food and light industries there are also negative phenomena such as incomplete loading of production capacity because of shortages of agricultural raw materials, especially in years with bad harvests, and incomplete use of raw materials because of lagging in the technical levels of production. Especially in years with good harvest this leads to extensions of the processing period.

Another reason for many disproportions in the APK is the chronic lagging in the production infrastructure. This especially applies to the availability of modern potato, vegetable and fruit storage facilities, garages and sheds for equipment at kolkhozes and sovkhozes. The most acute problem in rural areas is still the one of roads.

Because of all these factors, while investing considerable resources to increase the production of grain, vegetables, meat and milk, farms later loose quite a bit of this output because of poorly organized transport, untimely processing, and unsatisfactory storage. At the same time it is known that the development of processing and storage facilities requires far less resources than does the production of the output which we annually loose.

At the All-Union Conference on Problems of the Agro-Industrial Complex, held in March 1984, it was stressed that the development of processing and storage facilities, specialized transportation and the production of packaging is one of the most rational ways for increasing production, improving product quality and for more completely meeting the population's demand for foodstuffs.

To solve this large problem, the Food Program makes provisions for substantial changes in investment policies. Compared to the preceding plan, the growth in capital investment volumes in the 11th Five-Year Plan is: in tractor and agricultural machinery building -- 55 percent, in machinery building for animal raising and feed production -- 1.7 fold, in machinery building for the light and food industries -- 45 percent, and in the microbiological industry it is 32 percent. These tendencies will also be maintained in the 12th Five-Year Plan.

The distribution of capital investments in agriculture is characterized by an absolute decline in their volume for the construction of large animal raising complexes, but by a considerable increase in the development of feed production and preparation, the installation of potato, vegetable and fruit storage facilities, the construction of hard surfaced roads and social infrastructure.

In the 11th Five-Year Plan social needs received 22 percent of all capital investments in agriculture, compared to 17.9 percent in the 10th Five-Year Plan.

In accordance with decisions of the May (1982) Plenum and the USSR Council of Ministers, in June 1983 a decree was passed "On the Procedure for Planning and Material-Technical Supply in the USSR Agro-Industrial Complex." Following this decree, the all indicators of the APK are to be planned as single whole, broken down by sectors. The APK includes enterprises and organizations in the USSR Ministry of Agriculture, the USSR Ministry of Land Reclamation and Water Resources, USSR Goskomselkhoztekhnika, the USSR Ministry of the Meat and Dairy Industry, the USSR Ministry of the Fish Industry, the USSR Ministry of the Fruit and Vegetable Industry, the USSR Ministry of Procurement, the USSR Ministry of Rural Construction, the State Forestry Committee, the Main Administration for the Microbiological Industry and Tsentrosoyuz [Central Union of Consumers' Cooperatives].

The drafts of USSR Gosplan's state plans for the economic and social development of the USSR make provisions for a section on "The USSR Agro-Industrial Complex."

The draft five-year and annual plans for the APK as a whole have the following summary indicators: growth rates of gross (commercial) output for the APK for the country as a whole and for union republics; growth rates of final product for union republics; limits on state capital investments and construction-installation work; the operational introduction of fixed capital.

To assure the balanced, proportional development of sectors in the country's APK and the steady growth in their efficiency, a new procedure has been established in USSR Gosplan for working out draft plans for APK development. It makes it possible, if necessary at the formation stage to have control figures for the redistribution of capital investments and material resources between APK sectors and to eliminate disproportions.

In order to overcome lagging and bottlenecks in the development of APK sectors, the Councils of Ministers of union republics have been authorized to redistribute up to 15 percent of the limits on capital investments and construction-installation work from the total limit for the corresponding sector. This is done at the development stage of the draft for the annual capital construction plan and with the agreement of USSR ministries and departments.

Considerable rights in planning APK production and social development have been given to rayon, oblast, kray and republic (ASSR) agro-industrial associations. Their main planning tasks are to assure proportionality and balance in the development of enterprises and organizations in an association, to deepen production specialization and concentration and to improve the use of the production potential created and the capital investments allocated. They are given the authority, upon the agreement of superior sectoral organs, to redistribute capital investments, material-technical and other resources between enterprises, organizations and sectors in the APK.

The implementation of measures outlined by the May (1982) Plenum and subsequent decisions by the party and government is having a positive effect upon production results.

Agriculture's development has become more dynamic and stable. It is sufficient to note that compared to the two previous years of the 11th Five-Year Plan, during 1983-1984, the average annual production of milk increased by 7.4 million tons, that of meat by 1.4 million tons, and eggs by 4.6 billion. Per capita agricultural output increased, while the population itself grew. This considerably increased per capita consumption and substantially improved diet patterns. However, far from all the Food Program's targets are being successfully fulfilled. This is due to many reasons. One of them is that the initiative and farms'independence is by no means being expanded everywhere. At the same time, at was noted at the April Plenum, because of departmental interests, rayon and oblast agro-industrial associations often cannot sufficiently coordinate solutions to questions in the comprehensive development of agriculture and sectors linked to it. This is evidence of the need to further improve the economic mechanism in the agro-industrial complex, and to search for forms of APK planned management which would, above all, give space to initiative and entrepreneurial ability and have a direct effect upon improving the efficiency of primary collectives, as the realization of general state tasks depends in the final account upon the results of their activities. Measures should be taken which will permit planning, managing and financing the agro-industrial complex as a single whole at all levels.

Paths for solving this difficult dilemma are being tested in economic experiments being planned or conducted.

An experiment on further improvements in agricultural planning is being conducted in the Lithuanian and Georgian SSR's. For a number of years extensive work has been done in these republics to improve the APK's economic mechanism.

We should dwell in more detail upon conditions of the experiment in the LiSSR.

With the participation of the Lithuanian SSR Council of Ministers and interested ministries and departments, USSR Gosplan worked out and approved the conditions for the experiment. These define its tasks and ways of their solution.

Problems in improving the planning of agricultural production have been given great attention in the Lithuanian SSR in previous years. In order to increase farms initiative and independence, for more than 20 years a system has been used to equalize farming conditions. It is based on the differentiation of state purchase prices for agricultural output. The distribution of capital investments and material-technical resources to rayons and farms takes into account the creation of equal conditions for production. Upon agreement of the USSR Ministry of Agriculture, for several years now 300 farms in the republic have been working out their own production-financial plans for a reduced number of indicators.

The main goal of the experiment in Lithuania is to expand the potentials for the independence and initiative of kolkhozes, sovkhozes and other agricultural enterprises toincrease the efficiency with which they use resources and to improve work quality.

The experiment calls for working out, in the republic, a single plan for the development of the APK. The "Agriculture" section gives consideration to the development of private subsidiary operations.

The main attention in the plans is given to improving the balance between production and the development of the material-technical base, for further deepening of production specialization and concentration, taking natural and climactic conditions into account, for the rational use of land, material, labor and financial resources, for strengthening economies and improving product quality and preservation.

Contractual ties are more widely used to regulate relations between APK units.

The normative method for working out plans has an important place.

In 1984 one-third of the farms in the republic worked out production-financial plans for a reduced list of indicators, the number of which declined from 16,000 to 4,000. This year all kolkhozes and sovkhozes in the republic used this principle to compile production plans.

It is important that the experiment is directed towards the development of the democratic basis of planning, the elimination of petty tutelage over farms by higher organizations, and towards enhancing the responsibility of all APK elements to attain high final results.

Simultaneously, there has been an expansion of the Lithuanian SSR Council of Ministers' planning rights. It has been given the functions of approving indicators such as the state purchase volume of potatoes, vegetables, fruits and berries, livestock and poultry, limits on the use of agricultural output for public food services to workers and employees and a number of other indicators for agriculture; as well as to establish, taking republic requirements into account, the production volumes and assortments of mixed feeds and protein-vitamin additives produced at republic Ministry of Procurement enterprises, the industrial processing volumes for livestock, poultry, milk and meat and dairy products in general and the entire assortment, the volumes and assortments of food and fruit and vegetable products produced at enterprises in the republic food and fruit and vegetable industries using raw materials with production plans set by the Lithuanian SSR Council of Ministers and products which are mainly used in the republic.

The results for 1984 show that enterprises in the LiSSR agro-industrial complex working under the conditions of the experiment have considerably improved the use of existing production reserves. Compared to 1983 livestock and poultry purchases increased by 11 percent, milk by 10 percent and eggs by 5 percent. The plans for sales of grain, potatoes, sugar beets and other crops were fulfilled. Measures were taken to strengthen the feed base for animal raising. The production of agricultural products in 1985 has been planned in accordance with five-year plan targets.

The annual plan for the economic and social development of the Lithuanian SSR agro-industrial complex and the consolidated plan for the development of APK's

in rayons and the republic as a whole are compiled on the basis of local suggestions.

Agricultural product procurement volumes are assigned simultaneously with limits on capital investments and the main types of material-technical resources. In case of changes in purchase volumes, corresponding changes are made in these limits. A flexible reserve has been set up for this purpose.

In order to more completely consider the long term development problems of kolkhozes and sovkhozes, suggestions have been obtained from them concerning state purchase volumes for 1986-1990, applications for capital investments and the basic types of material-technical resources and services.

In accordance with the tasks in the gradual conversion to the normative method of planning in four groups of farms with differing natural-economic conditions, a procedure has been worked out for allocating sovkhozes wages funds per unit of gross output so that in the 12th Five-Year Plan all farms can be converted to this normative.

Mutual property responsibility among APK partners has been made more precise with regard to the fulfillment of contractual obligations for agricultural product purchases and plans for material-technical support and production-technical servicing.

Interdepartmental and interfarm cooperation is expanding. A second mixed feed plant with an elevator is being built on an interfarm basis in the republic. This will help considerably expand the possibilities for receiving grain from combines, bypassing the farm threshing floor. In 1985 it is planned to begin the construction, on an interfarm basis, of a 4,300 head pig raising complex using food wastes collected from Vilnyus. The construction of storage facilities for mineral fertilizers is being expanded through the use of resources from Selkhozkhimiya and kolkhozes and sovkhozes.

During the experiment it was found necessary to solve a number of problems: improvements in the planning of capital investments and deliveries of the main types of material-technical resources in coordination with agricultural product purchase volumes and deliveries to the all-union fund; changes in the procedure for assigning control figures for social and economic development plan drafts and a number of other problems. At the same time it became quite obvious that it is required to intensify the work of scientific institutions in VASKhNIL [All-Union Academy of Agricultural Sciences imeni V. I. Lenin] and USSR Gosplan in the preparation of a methodological basis for conducting the experiment.

It must be noted that while there are common basic goals to the experiments, there are several differences in their implementation for each republic. Consequently, in order to analyze results, it was possible to compare the results and efficiency of various methodological approaches. Naturally, this is on of the guarantees of selecting the most rational structure for a planning mechanism which could be applied to other regions.

For example, the experiment on improving agriculture planning in the Georgian SSR was conducted together with improvements and simplifications in the mechanism for managing APK sectors at all levels.

For this purpose a Georgian SSR State Committee for Agricultural Production was set up in 1983, based on the ministries of agriculture and land reclamation and water resources. Last year Selkhoztekhnika's rayon production associations and the administrations for land reclamation and water resources were eliminated. Their functions were entrusted to RAPO, which were directly subordinate to the State Committee for Agricultural Production, or, on questions of intersectoral linkages -- to the Georgian SSR Council of Ministers' Presidium Commission.

Organizations involved in agricultural production, services, construction and agrarian science at all levels are now within the republic agro-industrial complex's management sphere.

The fairly short period which has passed shows that improvements in management structure are having an effect upon a unified state policy in the countryside and are eliminating the effects of a narrow departmental approach, fragmentation and parallelism.

Production indicators are markedly improving. Last year's grain harvest was the highest ever, and plans for vegetable, fruit, livestock, poultry, milk, eggs and wool sales to the state were overfulled. Compared to 1983, APK sectors increased industrial output by 6.6 percent, this is 1.7 percent higher than the average annual indicator called for by the five-year plan. Kolkhoz and sovkhoz economies are being strengthened. The plan for labor productivity increases in agriculture was fulfilled.

A large scale experiment is under way in the Estonian SSR, where, just as in the Georgian SSR, is being conducted against a background of improvements in APK sector management improvements, but following a different scheme.

During the course of the experiment in the Estonian SSR great attention is given to considerable increases in the role and responsibility of ESSR Agroprom and RAPO's for working out and implementing plans. ESSR Agroprom assigned rayons control figures for output purchases for all types of farms independently of their departmental subordination. Resources are allocated to RAPO without breakdown by kolkhoz, sovkhoz or enterprise in Selkhoztekhnika or reclamation organization. Only enterprises in the USSR Ministry of the Fruit and Vegetable Industry obtain them separately.

The second feature is that, beginning in 1986, USSR Gosplan will give the republic purchase plans only for food grains (rye and brewing barley). It is intended to locally plan the use of feed grains. This will help in considerably reducing hauls and, the main thing, create an interest in increasing grain production.

The third feature is the introduction, in the 12th Five-Year Plan, of the normative method for planning meat, meat product, milk and milk product deliveries to the all-union fund. It is intended that USSR Gosplan use the

established normatives to allocate the republic concentrated feeds from state resources and mineral fertilizers depending upon meat and milk deliveries to the all-union fund. At the same time ESSR Agroprom and ESSR Gosplan are working on their own normatives for resource allocation depending upon purchases of these products. They are also applying the normative method of planning to rayons and farms. The list of resources for which output calculations [obschet] are made, can be further expanded.

The scale of APK experiments in the country is growing. Experiments have begun to further improve the agricultural management system and economic mechanisms in other sectors of the APK in Stavropol Kray, Vologda Oblast, Aleyskiy Rayon in Altay Kray, Glazunovskiy Rayon in Orel Oblast, Kinelskiy, Kuybyshevskiy, and Ordynskiy rayons in Novosibirsk Oblast, in Pritobolniy Rayon in Kurgan Oblast and Timashevskiy Rayon in Krasnodar Kray.[1]

Economic experiments at various levels of administrative territories in the Russian Federation will make it possible to select the optimal variant for further improvements in APK planned management, taking into account the effect of the planning-economic mechanism from kray and oblast down to rayon and farm or enterprise.

The Ukrainian SSR Food Industry is in the second year of a large scale economic experiment.[2]

Here the sector gives enterprises broad operational rights and economic incentives. First of all, there have been reductions in the number of plan indicators set for the enterprises. Enterprises and associations in the experiment are given 9 indicators in their annual plans instead of 25 and, in their five-year plans, 8 instead of 14. A new procedure has been established for adjusting them according to results from agricultural raw materials procurements. Enterprises have been authorized to sell output not selected by customers utilizing allocated funds during a month, and to other trading organizations, upon their discretion and to include this as delivery plan fulfillment. They have also been given the right to form financial reserves up to 5 percent of their circulating capital quota. These are formed through above plan profits and part of the incentive markups on wholesale prices for new goods of improved quality. The UkSSR Ministry of the Food Industry has also been authorized to form reserves for wages funds and profits up to 6 percent of the plan indicators.

During the experiment the ministry has the right, upon agreement with USSR Gosplan, to adjust individual associations' (enterprises') list of plan indicators and economic normatives, taking their specific working conditions into account.

Enterprises' economic activities are primarily evaluated for the fulfillment of plan targets for output delivery, its assortment, quality and delivery time according to contracts, for the percentage of higher quality output and for increases in profits.

The role of economic normatives as a major tool influencing enterprise activities has been enhanced. Wages and economic stimulation funds are

increased on the basis of normatives and for growth in production volume and profits.

In order to accelerate scientific-technical progress, associatons (enterprises) can, if it is economically advisable, use part of the unified fund for the development of science and technology to conduct planning and design work on new technology and to compensate for increased outlays during its introduction. This can be done through depreciation deductions intended for major repairs, additional outlays for technical reequipment of fixed capital in excess of that in the plan for limits on central state capital investments, or it can be done independently. The ministry is given the right to put a specific share of this fund at the disposal of enterprises and associations.

Considerable additional subsidies are given to associations and enterprises in order to increase labor collectives' interest in growth in production efficiency and in strengthening cost accounting. Improvements have been made in the procedure for planning and using the wages fund, material incentives fund and social-cultural measures fund. Production association (enterprise) administrations are given the right, upon agreement with the trade union organization to pay additional wages to highly qualified workers occupied in especially responsible jobs, for professional mastery and allowances [nadbavka] to highly qualified engineering and technical personnel up to 50 percent of their salaries, additional payments for mastering more than one job and other benefits. The money is to come from savings in the wages fund.

The Ukrainian SSR Ministry of the Food Industry is entrusted with implementing a system of measures to enhance the stimulus effect of premiums for fulfilling targets for output sales volume, taking into account contractual obligations for deliveries.

The work results of Ukrainian SSR food industry enterprises in the experiment support the advisability of these measures to improve the economic mechanism. Ukrainian food workers successfully fulfilled the 1984 plan for output sales, including delivery obligations. Compared to 1983 they increased the production of sugar, lump sugar, confectionary and macaroni items, canned fruit and vegetables and other products.

In 1984 there was a marked reduction in the number of enterprises not fulfilling plan targets. Out of 260 production associations, only 3 did not fulfill product sales plans.

There were marked improvements in product quality and assortment. High quality products amounted to 15.3 percent of total production, while the plan called for only 13.5 percent.

The labor productivity plan was 102.8 percent fulfilled, exceeding the 1983 level by 1.8 percent.

The experiment considerably expanded the possibilities of republic food industry enterprises to technically reequip production and to accelerate scientific-technical progress.

Capacity growth resulting from the technical reequipment of operating enterprises has resulted in additional output worth 30 million rubles (in wholesale prices).

In noting the first positive results, one must also mention the shortcomings. For example, compared to 1983, labor outlays (per ruble of output) have grown. Their growth in the republic's sugar industry considerably exceeded growth in

labor productivity, the average wage in the meat and dairy industry increased while labor productivity dropped. There was somewhat of an increase in worker cadre turnover and the percentage of low quality products is still high.[3]

Since 1 January of this year in the USSR Ministry of the Food Industry, in addition to the UkSSR Ministry of the Food Industry, five republic ministries have been included in the experiment: Belorussian SSR, Azerbaijan SSR, Moldavian SSR, Latvian SSR, Estonian SSR, and in the Meat and Dairy Industry -- the Belorussian Ministry of the Meat and Dairy Industry.

Improvements in the agro-industrial complex' planned management are a key condition for implementing the USSR Food Program, and consequently for assuring further growth in the Soviet people's welfare.

On both an economic and political level the Food Program is the central problem in this decade. Its successful solution requires the smoothly efficient work of all APK sectors, high responsibility on the part of each element to increase production volume, improve food product quality and organize the reliable and continuous supply of all types of high quality food to the public.

Plan and economic organs' task is, while improving the planned management of the agro-industrial complex, to establish economic, social service and organizational conditions for labor collectives which will generally enhance creative activity, the growth in labor discipline, provide all sorts of incentives to initiative, honesty and at the same time affirm an atmosphere of intolerance towards passivity, looseness and inefficiency.

The party is not asking for loud words, but for deeds. Cadres' ideological and state maturity is weighed in practical results.

It is a matter of honor for each production collective and each worker in the agro-industrial complex to make a maximim contribuion to fulfilling the USSR Food Program. This is to based on the strengthening of labor and production discipline.

FOOTNOTES

1. For conditions of the experiment at the Kuban' Kombinat, see EKONOMIKA SELSKOGO KHOZYAYSTVA, No 4, 1985.

2. For the experiment in UkSSR Ministry of the Food Industry enterprises, see EKONOMIKA SELSKOGO KHOZYAYSTVA, No 8, 1984.

3. In its next issue, this journal will publish an interview on the experiment in the UkSSR Ministry of the Food Industry with G. D. Zagorodniy, minister of that industry.

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AGRO-ECONOMICS AND ORGANIZATION

DETERMINING PLANNING PERIODS IN APK SYSTEM

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/Article by A. Chernomorets, Candidate of Legal Sciences, Tyumen: "Planning Periods Within APK System"/

/Text/ During the April (1985) Plenum of the CPSU Central Committee, it was pointed out that "...measures must be taken which will make it possible to control, plan and finance the agroindustrial complex as a single entity at all levels"[1]. At the present time, fixed attention is being given to the problem of improving planning within the APK /agroindustrial complex/ system. Special importance is being attached here to the question of planning periods.

In conformity with the decisions handed down during the May (1982) Plenum of the CPSU Central Committee, the work of agricultural enterprises, enterprises and organizations which provide services for agriculture and process its products and also the entire agroindustrial complex is being planned as a single entity. The legal basis for such unity is embodied in Decree No. 563 of the USSR Council of Ministers dated 23 June 1983, entitled "On the System for Planning and Logistical Supply Within the System of the USSR's Agroindustrial Complex"[2].

This decree is not solving the problem of planning periods within the APK system. It merely points out that the plans for the development of the agroindustrial complex are prepared in the manner and in keeping with the schedules called for in Decree No. 695[3] of the CPSU Central Committee and the USSR Council of Ministers dated 12 July 1979. The indicators for agricultural development and the order for presenting the five-year and annual plans and the recommendations for their use to USSR Gosplan are on the whole established for the agricultural branch in conformity with Decree No. 1032[4] of the CPSU Central Committee and the USSR Council of Ministers dated 14 November 1980.

As you can see, a reference is made to the 12 July 1979 Decree regarding the question of planning periods within the APK system. However, an analysis of this problem reveals that it is not being solved completely. The decree provides only for the final periods for presenting the draft plans for the economic and social development of branches and union republics to USSR Gosplan and the USSR Council of Ministers.

In order to present more clearly the order and schedules for five-year and annual planning embodied in this decree, let us analyze the 12th Five-Year Plan,

that is, the period from 1986 to 1990. In accordance with the draft Basic Directions for the Economic and Social Development of the USSR, approved in the established manner, USSR Gosplan develops control figures for the principal indicators and economic norms for the forthcoming five-year plan, with a distribution by years, and makes them available to the USSR ministries and departments and the union republic councils of ministers one year prior to the next five-year plan. For the 1986-1990 period, the control figure indicators should have been made available prior to 1 January 1985.

The schedules for advancing the control figures from the USSR ministries and departments and union republic councils of ministers to the associations, enterprises and executive-agent organizations were not defined here. As already noted, the planning schedules generally were not provided for in the 23 June 1983 decree. It contained only an instruction calling upon the union republic councils of ministers and the USSR ministries and departments to ensure that the control figures for development of the agroindustrial complex are made available to the agricultural, industrial and other enterprises and organizations. Moreover, it should be borne in mind that at all levels of planning and simultaneously with control figures for the procurement volumes for agricultural products and for the production of industrial goods, control figures must also be made available for the capital investment limits, for the delivery volumes for mineral fertilizers and agricultural equipment and for other indicators (Point 2, Paragraph 5). It is further stated that kolkhozes, sovkhozes and other enterprises and organizations included in the structure of a RAPO /rayon agroindustrial association/ are guided by control figures and prepare draft five-year plans for economic and social development (with a distribution of tasks by years) and present them to their higher organs and rayon agroindustrial associations in accordance with the established schedules (Point 3). However, these schedules are not defined in a normative manner.

In the 12 July 1979 Decree, it is merely pointed out that USSR Gosplan, taking into account the draft five-year plans presented to it by the USSR ministries and departments and the union republic councils of ministers, prepares a draft state five-year plan for the economic and social development of the USSR that is balanced in terms of all indicators (with a distribution by years) and presents it to the USSR Council of Ministers no later than 5 months prior to the next five-year plan. The schedule for presenting such a plan for the 1986-1990 period is 1 August 1985.

It thus follows that the process of advancing the control figures from the USSR ministries and departments and union republic councils of ministers to the associations, enterprises and executive-agent organizations, the development by them of draft five-year plans (with a distribution of tasks by years) for their production-financial activity, the coordination of these plans with the territorial and branch organs and also the preparation of summary plans for the economic and social development of branches and republics and their presentation to USSR Gosplan by the respective USSR ministries and departments and union republic councils of ministers, encompasses a seven month period, that is, from 1 January to 1 August of the year preceding the commencement of the next five-year plan.

The schedules for carrying out the planning work within the APK at each of the mentioned stages and at the respective levels have not been established in the

all-union governmental documents. This means that if the USSR ministries and departments, the union republic councils of ministers or lower branch or territorial organs are slow in delivering the control figures to the associations, enterprises and exectuvie-agent organizations, the latter will have less time available in which to develop their own draft plans. Accordingly, reductions will take place in the schedules for preparing and coordinating at all levels the draft summary plans for economic and social development for branches and union republics. These same consequences will attend any delay by associations, enterprises and organizations in the APK system in preparing their own plans. The greater the amount of time consumed in the preparation of draft plans in the principal (primary) production element, the less time will be available for coordinating them with the respective branch, inter-branch and territorial organs or for preparing the draft summary plans for the economic and social development of branches and union republics and presenting them to USSR Gosplan.

The 12 July 1979 Decree obligates USSR Gosplan to present the USSR Council of Ministers with the draft state plan for the economic and social development of the USSR no later than 4 months prior to the commencement of the year being planned, that is, prior to 1 September (Point 4, Paragraph 5). Hence the period from 1 January to 1 September of the year preceding the one being planned, or 8 months, is set aside for the preparation by the associations, enterprises and organizations of their own draft plans for production-financial activity and coordinating them at all levels, for the preparation of the summary plans for branches and republics and presenting them to USSR Gosplan and for their preparation of a draft plan for the country's economic and social development for examination by the USSR Council of Ministers. The schedules for solving these problems at each of these planning stages have not been established in a normative manner. They are determined on the basis of individual legal documents. And this leads to the appearance of subjectivism in planning work, to irresponsibility on the part of the planning organs, to delays in their carrying out certain work in the area of planning and to disruptions in order and state discipline in this important sector of economic activity.

It should be noted that each stage of planning in the APK system advances specific tasks that require unique approaches for studying and working out the various problems. And here, quite naturally, a question arises concerning schedules. It is our opinion that these schedules must be determined at least on the basis of such principal planning stages as the delivery of control figures by the USSR ministries and departments and union republic councils of ministers to the associations, enterprises and executive-agent organizations; the preparation by the latter of their plans for production-financial work; the coordination of these plans with all of the branch and territorial organs; the preparation of summary plans for the economic and social development of ASSR's, krays, oblasts and making them available to the USSR ministries and departments from a branch standpoint and to the union republic councils of ministers from a territorial standpoint; the preparation by them of draft plans for developing the respective branches and union republics and presenting them to USSR Gosplan. The schedule established at the present time for USSR Gosplan presenting the USSR Council of Ministers with a draft five-year plan for economic and social development is clearly inadequate.

Within each of the mentioned stages, the schedules for solving particular problems in the area of planning can be defined more specifically. For example, if a clear determination is made with regard to supplying the associations, enterprises and RAPO organizations with control figures in accordance with the directive indicators for the plan, then there will be an adequate basis for establishing specific schedules for them for preparing their own plans for production-economic work and presenting them to the appropriate organs for coordination. It is our opinion that schedules must be established for coordinating these draft plans with the appropriate branch and inter-branch organs and for presenting them to the oblast, kray and republic (ASSR) agro-industrial associations and also to the oblast (kray) executive committees and the councils of ministers of autonomous republics. It is obviously equally important to determine the schedules for the preparation of summary plans for the development of ASSR's, krays and oblasts and for presenting them to the union republic councils of ministers and USSR branch ministries and departments.

In other words, the entire period devoted to preparing the draft five-year and annual plans for the economic and social development of the USSR should obviously be broken down in the principal stages and schedules established for each of them for carrying out appropriate actions and for handing down decisions in the area of planning.

It is our opinion that schedules should be established for supplying the kolkhozes, sovkhozes and other APK enterprises and organizations with tasks for the five-year and annual plans which have already been approved during a session of the USSR Supreme Soviet. They have still not been defined today. In actual practice, this can naturally lead to various adverse phenomena.

Experience has shown that failure to observe the planning schedules within the APK can bring about other disruptions. The question concerning schedules turns out to be a key one with regard to improving planning for the national economy as a whole and for APK operations in particular. In our opinion, the most important planning schedules within the APK system must be those defined on the basis of a governmental document. In particular, the 23 June 1983 Decree can be supplemented by appropriate norms. More specific schedules can be found in the methodological instructions for preparing state plans for the economic and social development of the USSR, approved in Decree No. 63 of USSR Gosplan dated 31 March 1980.

A scientifically sound determination of the schedules for planning within the APK system and their inclusion in the normative documents will promote an improvement in order and discipline in economic activity and the successful carrying out of the Food Program.

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AGRO-ECONOMICS AND ORGANIZATION

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COORDINATION PROBLEMS WITHIN APK PRODUCTION, SERVICE SECTORS

Sverdlovsk URALSKIYE NIVY in Russian No 9, Sep 85 pp 2-5

[Article by V. Kitayev, deputy chief of the Main Administration for Intersectorial Ties and Standardization of the RSFSR Ministry of Agriculture, under "Ekonomika" rubric: "Agricultural Industry: Fundamental Problems of Partnership"]

The establishment of rayon, oblast and republic agroindustrial associations significantly expanded the range of obligations of agricultural entities and complicated the work. In this connection, the RSFSR Ministry of Agriculture is paying special attention to strengthening the rayon link. The number of workers in the agricultural administrations of rayispolkoms was increased by 14,200 (by 8,600 in terms of RAPO's [rayon agroindustrial associations] in the Urals zone), and especially the economic service was strengthened and departments or grouups were established for intersectorial ties.

Standard regulations and other standard documents granted greater rights to RAPO councils, rights that are being skillfully utilized by such RAPO's as Pritobolnoye in Kurgan Oblast, Belyayevskoye and Sol-Iletskoye in Orenburg Oblast, Nytvenskoye in Perm Oblast, Krasnoufimskoye in Sverdlovsk Oblast, Troitskoye in Chelyabinsk Oblast, Ishimskoye in Tyumen Oblast, Ilishevskoye in Bashkirskaya ASSR, and others. The agricultural administrations of the Tyumen, Sverdlovsk and Chelyabinsk oblispolkoms are being more specific and consistent in improving the style and methods of work, concentrating their attention primarily on increasing the produciton of agricultural output and improving its quality. At the same time, they are directing the efforts of APK partners to the resolution of fundamental problems in the development of agricultural production in accordance with the USSR Food Program.

But it must be stated that many problems are being resolved slowly. Especially complex are questions in the improvement of the production-economic interrelationships of kolkhozes and sovkhozes with enterprises and organizations involved in agricultural production and with processing, procurement, construction and other organizations.

The councils of agroindustrial associations are paying special attention to the improvement of the work of subdivisions of Selkhoztekhnika, in which there was a noticeable increase in the capacities of repair enterprises as well as

in the amount of work for the technical servicing of MTP, machines and equipment in animal husbandry. In individual sectors, they are introducing the guaranteed delivery to kolkhozes and sovkhozes of spare parts, subassemblies and units for the repair of machinery. Some farm managers and specialists respond positively to the work of the rayon selkhoztekhnika organizations.

At the same time, in a number of oblasts, kray and autonomous republics, the repair and maintenance of machinery have not been organized satisfactorily, and many councils and presidiums of agroindustrial associations have been forced to review the complaints of kolkhozes and sovkhozes concerning cheating and exaggeration of work and to punish those guilty of the unauthorized sale of equipment being received under agricultural funds.

The councils of agroindustrial asociations are pinning great hopes on Selkhozkhimiya. To be fair, it must be said that its enterprises have begun to pay closer attention to the demands of kolkhozes and sovkhozes. Stations for the use of chemicals are being established to service remote farms. But there are shortcomings here as well. In many rayons, Selkhozkhimiya is reluctant to go to remote farms and does not perform the established volume of work.

Hydroeconomic and reclamation organizations are called upon to play a large role in increasing the production of agricultural crops. But it must be said that the plans for the amelioration of lands are often not fulfilled and the pace of construction of social amenities and housing is slow. Hydroeconomic construction organizations are not involving themselves in projects for soil improvement, the amount of their work is being reduced without justification, and the proper attention is not being paid to the initial improvement of reclaimed lands, especially with organic fertilizers. The level of operation of ameliorated systems is low and they break down prematurely.

Such negative phenomena have still not been overcome, because the ministries and departments called upon to run agriculture and their local representatives are enslaved to old ideas, not wanting to reorganize their production activity. That is why it is time for agricultural entities to be more principled in organizing production-economic relationships with APK partners and not forget about those fundamental problems that influence production.

First of all, it is necessary for the plans and the volume of work and services performed by enterprises and organizations operating agriculture to be reviewed and approved in the RAPO councils with a compulsory accounting for the orders of kolkhozes and sovkhozes. This was not done everywhere in 1984. The plans of the rayon selkhoztekhnika organizations were reviewed at only 7 RAPO councils in Perm Oblast and at only 10 councils in Chelyabinsk Oblast. Taking advantage of the lack of control, the enterprises of Goskomselkhoztekhnika frequently increase the amount of work and services without considering the requests of kolkhozes and sovkhozes. Thus, the Tyumen oblast association of Selkhoztekhnika increased the plan for the repair of combines by 400 units, even though it was not essential to do this, whereas in one of the remote rayons, Sladkovskiy, it did not include 34 machines in the

number of reconditioned grain harvesting machines and reduced the volume of maintenance work in animal husbandry from 96,000 to 78,000 rubles.

In Orenburzhye in 1984, in coordinating the control figures, the plans of the oblast to repair the machines and tractors of Goskomselkhoztekhnika were increased by 924,000 rubles and by 2.5 million rubles for motor transport.

Things are not much better in organizing contacts between RAPO councils and the enterprises of Selkhozkhimiya and reclamation and hydroeconomic organizations. The task of the councils and council presidiums of the agroindustrial associations consists in clearly coordinating and directing all of the work in planning the volumes of work and services of all partners. In 1985, the situation improved somewhat in this connection. But Goskomselkhoztekhnika continued to formulate plans without considering the requests of kolkhozes and sovkhozes. Therefore, in Perm Oblast, for example, the requirement for the repair of electric motors was increased by 1,600 units and the volume of sales and services in Orenburg Oblast was raised by 3.3 million rubles.

We have many complaints against builders who reduce the amount of construction in the rural areas and expand the funding ceilings for many organizations not included among the RAPO's. It has become necessary to establish a new RAPO construction service, which will make it possible to have one customer. Such is the experience of a number of oblasts.

The farms have a lot of complaints about the unjustified increase in prices for work and services performed by service organizations. A certain amount of work is being done in Sverdlovsk Oblast and Bashkiriya to lower the wage rates and job prices for services performed by the enterprises of Goskomselkhoztekhnika and Selkhozkhimiya as well as by hydroeconomic and reclamation organizations. But things are significantly worse in Kurgan Oblast, and therefore the kolkhozes and sovkhozes there are still suffering a great economic loss.

In 1984, for the RSFSR as a whole, 1,400 of the 2,000 enterprises of Goskomselkhoztekhnika reviewed rates and prices and the total reduction of expenditures for the planned volume of work was expected to be 17.8 million rubles, or an average of 12,000 rubles per RAPO; at Selkhozkhimiya, 1,162 of 1,662 rayon associations reviewed rates for a total of 13.9 million rubles (12,000 rubles per RAPO); the savings will reach 2.5 million rubles for hydroeconomic organizations.

In Orenburg Oblast, all RAPO's reviewed the prices for the performance of work and services by the enterprises of Selkhoztekhnika, and it is now the turn of Selkhozkhimiya, Selkhozenergo and the hydroeconomic organizations to do so. In addition, the prices of services in the drying, finishing and storage of grain have been approved for the enterprises of the cereal products administration. They are working in this same direction in Bashkiriya and Udmurtiya. Things are worse in Tyumen Oblast, where only 11 of the 32 enterprises of Selkhoztekhnika, 7 of 22 enterprises of Selkhozkhimiya and 2 of 9 hydroeconomic enterprises have been transferred to new rates. In addition,

there are cases of rate increases in Yarkovskoye, Tobolskoye, Uvatskoye and other RAPO's.

An attempt should be made to ensure that rates and prices must not exceed the level of expenditures of kolkhozes and sovkhozes for the performance of work through their own efforts. The initial base must be their production cost calculated according to technically valid standards and norms for labor and physical inputs on the basis on up-to-date technologies and organization of production and labor. In a number of rayons, the partners are still increasing their own well-being through the illegally confiscated means of kolhozes and sovkhozes, raising prices, rates and overhead expenses.

The economic interrelationships with the grain-receiving enterprises of the RSFSR Ministry of Procurement are in need of improvement. In addition to discounts from the physical weight of grain, they also retain monetary sums amounting to 0.3-0.4 percent of the actual purchase price for each percent of moisture content and impurity above the base conditions. And now, when the purchase prices for grain have risen, the purchasing agents are "clipping" unjustifiably high coupons, even though there has been a decrease in expenditures for preparation in connection with an increase in the level of mechanization of the drying and purification of grain. In 1983-1984, the councils of the agroindustrial associations of Bashkiriya as well as Orenburg and Chelyabinsk oblasts reviewed the prices previously in effect, having reduced farm expenditures for these purposes almost in half. The farms suffer particular losses in delivering strong and durum wheat with increased moisture content.

In recent years, acting on its own, the dairy industry reduced in half the number of receiving centers. And now half of the expenditures for the transport of milk are not reimburesed by purchasing agents. The result is that the farms have to be put in direct contact with the enterprises of the dairy industry. But in Kurgan, Orenburg and Sverdlovsk oblasts as well as in Bashkiriya nd Udmurtiya, direct milk sales amount to 7 to 18 percent of its overall delivery.

The development of the material-technical base of the meat industry is weak. The stock zones of mine combines cover vast territories. The centralized transport of livestock is still not resolving the problem of the local acceptance of livestock. This is only an intermediate stage for the transition of meat combines to the direct purchase of livestock at the farms. But this work is also coming along slowly. In centralized transport, however, transportation expenditures decline by 4 rubles per ton of livestock on the hoof, and there is no holding-over of livestock at the meat combines.

Numerous cases of the reduction of the weight and quality of output accepted by purchasing agents from kolkhozes and sovkhozes have still not been overcome. Spot checks carried out in Orenburg Oblast in 1983 established that kolkhozes and sovkhozes had received 2.6 million rubles less than what they should have received. The procurement offices of Oblpotrebsoyuz [oblast union of consumer cooperatives] underpaid them by 934,000 rubles, the road-building organizations by 664,000 rubles, and the enterprises of the dairy industry by 437,000 rubles. Last year, 2.1 million rubles were reimbursed to the farms.

In Chelyabinsk Oblast, 3.3 million rubles were recovered from procurement organizations, including 504,000 rubles for grain, 1.4 million for meat, 276,000 for milk, 196,000 for wool, and 599,000 rubles for potatoes and vegetables. There were also cases of underpayment in 1984.

Builders are allowing a lot of liberties. Many of them, not fulfilling plans on the farms, are overfulflling them in the projects of other customers. The value of materials and structures issued by interkolkhoz organizations is frequently higher than at state enterprises. The councils of a number of RAPO's are not confirming the plans of construction organizations, and they avoid helping kolkhozes in the joint construction of facilities constructed with the direct-labor method.

The confusion in the interrelationships of APK partners is especially evident in the formation and utilization of the centralized funds of agroindustrial associations. The enterprises and organizations of a number of ministries and departments are reluctant to transfer monetary resources to the accounts of agroindustrial associations, especially to the production development fund. Here are some data for the RSFSR. In 1983-1984, the Ministry of Procurement transferred 41 percent of the funds determined by the agroindustrial associations and RAPO's, the Ministry of Land Reclamation and Water Resources transferred 25 percent, the Union of Consumers' Societies 20 percent, and the Ministry of Rural Construction 23 percent. Things improved somewhat this year, but not enough so that the situation can be considered satisfactory. They are working most energetically in Bashkiriya and in Orenburg, Perm and Tyumen oblasts. For all funds there last year, as much as 70 percent went to the accounts of agroindustrial associations, including more than 80 percent in the economic incentive fund, 70 percent in the fund for social and cultural measures and housing construction, and 55 percent in the production development fund.

How are these assets utilized? In Tyumen Oblast, the portion of the centralized economic development fund assigned to the establishment of the machine park of Yarovskoy Sovkhoz amounted to 96,500 rubles and 35,000 rubles were allocated for the construction of a refueling station at the unprofitable Trud Sovkhoz. In Sverdlovsk Oblast, 180,000 rubles from this fund were transferred to five RAPO's for the repair of the birth departments of farms, 50,000 rubles for the construction of a transport tunnel at the Talitsa Grain-Reception Center, and 100,000 rubles for the development of a MPMK production base of the association oblkolkhozstroy. In Orenburg Oblast, these assets were used to equip a shop for the production of premixes and work is being done in the planning and construction of seven interfarm shops to obtain ZTsM [expansion unknown].

The minister sent to the local agricultural entities an explanation on the system for the utilization of the assets of the centralized RAPO economic incentive fund. It states that as a rule bonuses are paid to workers of enterprises and organizations transferring funds to RAPO accounts. But there are cases where bonuses are paid to managers of enterprises who do not put a single kopeck into the formation of APK funds.

In a number of oblasts, the centralized economic incentive funds serve in the organization of socialist competition. Thus, for the payment of bonuses to the victors in oblast competition in Orenburzhye, 3,000 rubles are allocated to each of the rayons from the fund of the agroindustrial association, 1,500 rubles to the kolkhozes and sovkhozes, and 500 rubles to the interfarm fattening sites. The conditions have been worked out for the payment of bonuses to the leading workers and specialists of Selkhoztekhnika, Selkhozkhimiya and other departments for the fulfillment of the plans for the production of ouput in the kolkhozes and sovkhozes served and for the reduction of planned expenditures.

I would also like to call your attention to the fact that agricultural authorities need to exercise tighter control over the fulfillment of contracts entered into by kolkhozes and sovkhozes with the enterprises serving them as well as with procurement and processing organizations. And, when necessary, they should also apply economic sanctions. This will be possible only if the RAPO's and oblast agricultural administrations establish responsible and competent economic and legal services. For the present in many oblasts, these services of our partners are operating significantly more actively.

None of the problems enumerated above regarding the interrelationships between APK partners is simple. Some of them can be resolved using guiding documents already in effect. Some cases require the persistence and initiative of the local managers at all levels. These qualities, along with a feeling of public responsibility for the assigned work, must be manifested actively. The party and government decrees demand it.

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AGRO-ECONOMICS AND ORGANIZATION

RECOMMENDATIONS FOR IMPROVING PRICING MECHANISM IN APK

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 9, Sep 85 pp 42-52

[Article by N. Glushkov, chairman, USSR State Committee for Prices: "Improving Pricing in the APK"]

[Text] The May (1982) Plenum of the CPSU Central Committee noted that the dynamic and effective functioning of the agroindustrial complex is one of the decisive conditions to success in the economic and social development of Soviet society. Almost three-fourths of state and cooperative retail trade is based on agricultural products and commodities produced from them. The nation's food program adopted by the plenum embodies the whole, integrated approach to the solution of the food problem. The problem is to coordinate and unify the work of agriculture and the branches of industry, transport and trade that serve agriculture and to subordinate all their activity to a common end goal--the production of high-quality food and the delivery of this food to the consumer.

In his speech at the April (1985) Plenum of the CPSU Central Committee, M. S. Gorbachev, general secretary, CPSU Central Committee, emphasized: "The development of Soviet society will be determined in decisive measure by qualitative changes in the economy, by its conversion to the path of intensive growth, and by the all-round increase in effectiveness."[1]

The conversion of the economy to the intensive path of development means expanded reproduction coupled with increasing restraints on resource utilization. The need for intensification is dictated not only and not even so much by the shortage of resources as by the fact that our economy has already attained such production volume that its further progress requires not so much its expansion as its renovation. Only on the basis of continuously growing labor productivity and the lowering of production cost is it possible to secure the further growth of the gross social product and national income which guarantees the implementation of our country's socioeconomic policy in the stage of developed socialism.

One of the main links in the economic mechanism is price. The equivalence of exchange between various branches of the national economy, the strengthening of the union of the working class and the kolkhoz peasantry, the correct combination of the interests of industry and agriculture, the increased

interest of people in the development of social production, and the improvement of the Soviet people's material well-being depend on the level and improvement of prices.

Price planning makes it possible to reach the most rational economic decisions, to distribute resources properly among various spheres and branches of production in a volume and structure corresponding to social needs that are articulated in five-year and long-range plans. The planned price is the norm of socially necessary production costs and profitability (profit) that motivates enterprises to reduce individual production costs, to introduce new machinery, to increase economic effectiveness, and to improve product quality on the one hand. On the other hand, the planned price is the norm that actively forms consumer demand and in that capacity it substantially influences the formation of the socialist way of life.

Price serves as the basis of cost accounting. Planned pricing proceeds from the need to secure cost accounting conditions for all normally functioning branches of the national economy as a whole as well as for enterprises that produce and purchase the products. Unlike other branches of the national economy, the system of prices and pricing in the APK has its own specific features and complexities. The fact of the matter is that prices within the APK include wholesale prices on industrially produced means of production supplied to agriculture, purchase prices and markups in purchase prices, consumer cooperative prices, retail trade prices, kolkhoz market prices, etc. All this equally affects different aspects of the interests of the working class and the peasantry, of each agricultural enterprise, and of all Soviet people. Therefore we must be particularly painstaking in our approach to the solution of the problem of improving the system of prices and the economic mechanism in the APK.

Profound qualitative changes in agricultural production in recent years have radically altered the technology, organization and economics of many branches: poultry farming, the fattening of hogs and cattle on an industrial basis, vegetable growing under greenhouse conditions, etc. This has made it possible to reduce labor expenditures dramatically and to make these branches highly profitable. The existing economic potential has also made it possible to integrate the mechanization of the principal production processes in our basic branch of agricultural production: grain farming.

The solution of the grain problem is the key problem for the development of agriculture and especially of animal husbandry. The need for grain forage significantly exceeds the expenditure of grain as food. Therefore the struggle for the rational utilization of grain resources is integrally connected to the economical use of forage. This is one of the main directions of lowering production costs in animal husbandry.

Feed accounts for the bulk of production costs in animal husbandry. Consequently, the top priority task in reducing the cost of livestock products is to secure the more effective expenditure of feed and especially of grain forage. So it is that a single price of 120 rubles per ton has been placed on mixed feeds no matter where they are produced in the nation. Given the purchase price of 130 rubles per ton of grain forage, northwestern regions of

the RSFSR and the Baltic republics enjoy an additional economic effect from using mixed feed produced in the southern grain growing regions where the purchase price is 80-90 rubles. As a result of the indicated price correlations, farms in the major regions producing grain for market are not interested in increasing its sale to the state and frequently feed grain forage to their animals in unprocessed form which is highly detrimental to all society since it leads to the irrational expenditure of such a valuable product which moreover is still not produced in sufficient quantity to satisfy the needs of the national economy. All this must be taken into account in future price reforms on agricultural products.

Succulent and coarse fodders must be more precisely taken into account (with regard to both gross and commodity output). Their thrifty use is an important reserve for reducing the cost of producing livestock products.

Various proposals are presently voiced on improving the system of prices in the agroindustrial complex in general. Let us discuss the most important among them.

Under the 11th Five-Year Plan, as in preceding years, purchase prices and markups in purchase prices have been improved.

In accordance with the decision of the May (1982) Plenum of the CPSU Central Committee, on 1 January 1983 purchase prices on the basic products of agriculture and animal husbandry were raised and markups were incorporated in purchase prices on products sold to the state by kolkhozes and sovkhozes operating near or below the breakeven point. Sixteen billion rubles were allocated for the purpose of raising prices and for instituting markups during the year. In addition, another five billion rubles were allocated to compensate the additional costs sustained by agricultural enterprises due to the higher wholesale prices on industrial products used in agriculture as of 1 January 1982 and higher gasoline prices. Out of the total 21 billion rubles, 11.2 billion were price rises and 9.8 billion were price markups.

Price rises and markups made it possible to strengthen the economy of kolkhozes and sovkhozes and to realize genuine cost accounting at all levels of agricultural production everywhere. In 1983-84, compared with the first 2 years of the current five-year plan, the nation's annual gross agricultural output rose by 11 billion rubles. State purchases of milk during this period rose by 14 percent; livestock and poultry--by 11 percent; and eggs--by 7 percent.

Total profits of kolkhozes and sovkhozes belonging to all systems were 23.7 billion rubles in 1983 and 19.5 billion in 1984 compared with 1.2 billion in 1982. Only as a result of the higher level of procurement of agricultural products in 1984 compared with the 10th Five-Year Plan, kolkhozes and sovkhozes realized and additional 6.3 billion rubles.

The new purchase prices and the markups in these prices make the profitable production of all types of products possible everywhere. The profitability of agricultural production on sovkhozes belonging to the USSR Ministry of Agriculture rose from -1.6 percent in 1982 to 20.1 in 1983 and 12.8 percent in

1984; the corresponding rise for kolkhozes was from 2.3 to 25.3 and 21.7 percent. The number of farms operating at a profit rose by 70% and the number of farms operating at a loss declined to almost one-fourth of the previous level.

The growth of cash receipts and profits strengthened cost accounting on kolkhozes and sovkhozes. Thus in 1983, kolkhozes allocated 16.6 billion rubles of their own resources (including amortization allowances) for capital construction and capital repair compared with 13.9 billion rubles in 1983; sovkhozes--6.3 billion compared with 5 billion rubles. The repayment of short- and long-term Gosbank loans by kolkhozes improved by 5 billion rubles.

The decree of the CPSU Central Committee and USSR Council of Ministers "On the Improvement of Economic Interrelations of Agriculture With Other Branches of the National Economy" is highly significant to the development of pricing in the agroindustrial complex. The decree for the first time defined the pricing of agricultural products as a key component part of national economic planning. Proposals on purchase prices and markups in these prices must now be submitted simultaneously with the submission of the draft plan for the economic and social development of the USSR in the next quinquennium.

This decree strengthened the equivalence of commodity exchange between town and country as the main direction of economic interrelations between agriculture and other branches. The level of purchase prices will now be established on the basis of changes in their correlations with wholesale prices on industrial products sold to agriculture and with costings and rates of services rendered to agricultural enterprises and organizations. The previous nonequivalence of economic interrelations between agriculture and industry is now excluded. Oversight over the correlation between purchase prices on agricultural products and wholesale prices on industrial products is organized on a state basis. On the basis of special methods, starting in 1983 the USSR Central Statistical Administration and the USSR State Committee for Prices calculate indexes of change in purchase and wholesale prices on industrial products sold to agriculture and costings and rates on services rendered to agricultural enterprises and organizations.

The summary index of purchase prices (payments), taking into account the increase in purchase prices and markups in them and the increase in the sum of the basis of special methods, starting in 1983 the USSR Central Statistical Administration and the USSR State Committee for Prices calculate indexes of change in purchase and wholesale prices on industrial products sold to agriculture and costings and rates on services rendered to agricultural enterprises and organizations.

The summary index of purchase prices (payments), taking into account the increase in purchase prices and markups in them and the increase in the sum of payments rose by 5.5 billion rubles. For individual agricultural products, the highest index of purchase prices (payments) was: 168 percent for corn; 144 percent for sugar beets and flax fiber; 139 percent for millet; 128 percent for feed barley and sunflower seed; and 121 percent for oats in crop production; and 140 percent for milk; 139 percent for beef; and 138 percent for mutton and goat meat in animal husbandry.

The summary index of wholesale prices on industrial products and of rates on services rendered to agriculture was 107 percent. The wholesale price for industrial products was highest for lumber and construction materials--137 percent and for fuel and lubricants--146 (for industrial means of production in general--109 percent). The index of Goskomselkhoztekhnika [State Committee for Supply of Production Equipment for Agriculture] markups was 108 percent; the index of Soyuzselkhozkhimiya [All-Union Science-Production Association for Agrochemical Service to Agriculture] markups--109 percent. The total relative increase in the cost of means of production for agriculture, taking into account the reduction in the cost of mixed feed and new machinery per unit of useful effect was 2.8 billion rubles; kolkhozes and sovkhozes were compensated accordingly in purchase prices and price markups.

At the same time that we note these facts, we should emphasize once more that there is now no basis whatsoever for the occasional discussion among scientists and practical workers regarding the non-equivalence of agriculture's relations with industry and other branches of the national economy. This conclusion can be confirmed by the following examples: in 1975 a 75-horsepower caterpillar tractor cost 2819 rubles. In 1983, it cost 3505 rubles or 24.3 percent more. During the same years, the purchase prices on grain rose 28.8 percent; potatoes--69.4; and milk--72.8 percent. While in order to purchase such a tractor in 1975, a farm had to sell 25.4 tons of grain, or 31 tons of potatoes, or 11.7 tons of milk, in 1983 the corresponding figures were 23.4, 18.9 and 8.4 tons. In order to purchase a ZIL-MM3-55K dump truck in 1975, a farm had to sell 27 tons of grain, or 35.3 tons of potatoes, or 14.1 tons of milk; in 1983, 21.4 tons, 21.3 tons, and 8.32 tons, respectively. A similar situation in the correlation of wholesale and purchase prices is also seen in the case of the basic means of production.

The decree referred to above stipulates that the level of purchase prices on agricultural products should be established on the basis of the need to secure the branch norm for aggregate profitability. According to the estimates, in order to secure the growth of production on kolkhozes and sovkhozes at rates indicated in the projections for the 12th Five-Year Plan, profitability of production on kolkhozes and sovkhozes must be 35-37 percent and cost accounting profitability must be 22-24 percent.

The USSR State Committee for Prices together with USSR Gosplan, the USSR Ministry of Finance, the USSR Academy of Sciences, USSR ministries and departments, and councils of ministers of union republics are currently drafting a program for the further development of scientifically substantiated pricing principles and on that basis are drafting a program for improving the system of prices in the future. In our view, while purchase prices introduced for agricultural products on 1 January 1983 may be preserved for the 12th Five-Year Plan without substantial modification, they will be changed for individual products. Thus, the purchase price of durum wheat has been raised to 150 rubles per ton. This purchase price will also be marked up as follows: 100 percent for first class grain, 70 percent for second class grain, and 20 percent for third class grain. The purchase price is marked up 50 percent for the sale of durum wheat to the state in excess of the average level attained under the preceding five-year plan irrespective of whether this level has been

surpassed for grain as a whole. Measures have been taken to motivate kolkhozes and sovkhozes to produce the most valuable and hardiest varieties of wheat.

Farms operating near or below the breakeven point realized 9.2 billion rubles from markups introduced on 1 January 1983; in 1984--10.1 billion rubles. Markups have had a positive impact on the financial performance of economically weak farms. Out of the 24,800 kolkhozes and sovkhozes that were operating at a loss in 1983, only 6400 continue to operate at a combined loss of 2.1 billion rubles. In 1984, however, the number of farms operating at a loss rose to 8000 primarily as a result of adverse weather conditions (17 percent of all farms).

The other unprofitable kolkhozes and sovkhozes have a low capital-labor ratio and an acute manpower shortage. They are usually remote from industrial centers and do not have good transport ties with them. However, since these farms have large areas of land and large herds of livestock at their disposal, they have large reserves for increasing the production of agricultural products and their sale to the state based on the renovation and strengthening of the material-technical and sociocultural base.

Markups account for 18 percent of the total earnings of farms operating near or below the breakeven point. Without these markups, the profitability derived from products sold to the state would not exceed four percent on the average and the absolute majority of such farms would be operating below the breakeven point.

Analysis of the activity of kolkhozes and sovkhozes based on the results of their work in 44 oblasts, krays and autonomous republics in the RSFSR showed the following. On economically strong farms, gross output increased by 6.4 percent; on farms operating near or below the breakeven point--by 9.2 percent; and on the most unprofitable farms--by 22 percent. While labor productivity on the economically strongest farms increased by 4.8 percent, on kolkhozes and sovkhozes near or below the breakeven point, it increased by 10.1 percent, and on the most unprofitable farms--by 11.1 percent. The correlation of the growth rates of labor productivity and wages has improved on farms operating near or below the breakeven point.

The decree of the CPSU Central Committee and the USSR Council of Ministers "On Improving Economic Interrelations Between Agriculture and Other Branches of the National Economy" in 1986 extended the action of markups in purchase prices to agricultural products sold to the state by farms operating near or below the breakeven point. In the opinion of the USSR State Committee for Prices, the action of these markups should also be extended to the following years of the 12th Five-Year Plan.

The economic activity of economically weak kolkhozes and sovkhozes was greatly complicated by their heavy indebtedness to Gosbank that developed between 1970 and 1982. The indebtedness of RSFSR kolkhozes and sovkhozes not included among farms scheduled to receive markups was 474,000 in defaulted loans alone per farm. The indebtedness of farms operating near or below the breakeven point (which account for 63 percent of the gross output) was 1.3 million

rubles per farm. Indebtedness of the most unprofitable farms was 1.8 million rubles per farm. The profit of the most unprofitable farms was one-seventh their defaulted indebtedness and almost half of their cash earnings. The most unprofitable farms in Kirov, Ivanovo, Orel, Novgorod, Kostroma, Vladimir, Perm, and Tomsk Oblasts account for up to 65 percent of all loan extensions. The mechanism for raising purchase prices and the introduction of markups did not affect the economy of these farms since the funds allocated to them were used to pay off debts.

In the interest of improving the economic incentives for increasing the production and procurement of agricultural products, the decree of the CPSU Central Committee and the USSR Council of Ministers "On Improving Planning and Economic Incentives for the Production of Agricultural Products" specified that in 1981-85, agricultural enterprises and associations would be paid a markup in the amount of 50 percent of purchase prices on basic types of products sold to the state in excess of the average level of their procurement under the 10th Five-Year Plan. This had a positive influence on increasing the production and sale of products to the state and on strengthening the economy of farms. The average annual level of payment of the 50-percent markup for 1981-85 will be 5 billion rubles compared with 2.8 billion rubles in 1976-80. The indicated markups are retained for 1986. In our opinion, they should be continued under the 11th Five-Year Plan as well.

As already noted, the state of the economy and the possibility of expanded reproduction on kolkhozes and sovkhozes are closely associated with prices on producer goods for agriculture and with rates on production services. The proportions of realization of means of production and agricultural products have changed in recent years in the favor of kolkhozes and sovkhozes. The USSR State Committee for Prices is making stricter demands on industry's economic justification of prices on material-technical resources for agriculture. Pricing agencies attach much importance to improving the methods and practices of assigning wholesale prices to new machinery.

However all the problems have not by any means been solved. Thus, wholesale prices on agricultural machinery are established on the basis of technical and economic parameters and their quality according to tests performed at machine testing stations belonging to USSR Goskomselkhoztekhnika and the specifications of technical norms prior to the commencement of series production. At the time wholesale prices are assigned, their level corresponds to the calculated economic effect. However, the operation and testing of assimilated equipment show that technical and economic parameters, reliability in particular, are frequently lower than the parameters of equipment that is put into production and that are used as the basis for approving prices. In such cases, we approve the discounting of wholesale prices on agricultural machinery for the period preceding the manufacturing enterprise's introduction of measures to raise indicators to the normative level.

On the other hand, for a number of reasons kolkhozes and sovkhozes do not fully realize the useful effect envisaged in the pricing of new machinery and the result is higher production costs. Therefore the correlation between

wholesale prices and the actual parameters of new machinery supplied to agriculture should be tested directly on the farms.

The services that are rendered to kolkhozes and sovkhozes by various organizations serving agriculture are expensive and of inferior quality. Councils of rayon agroindustrial associations [RAPO's] can now assign substantiated costings (rates) to a considerable percentage of the works performed for kolkhozes and sovkhozes by enterprises and organizations belonging to USSR Goskomselkhoztekhnika SSSR, the USSR Ministry of Land Reclamation and Water Resources, the USSR Ministry of Procurement, Soyuzselkhozkhimiya, etc. RAPO councils are also entitled to establish accounting prices on livestock, feed, materials, and other resources that kolkhozes and sovkhozes deliver to one another. This promotes the development of integration in agricultural production and interfarm cooperation with due regard to local production conditions.

The establishment of proper order in the interrelations between kolkhozes, sovkhozes and other state agricultural enterprises with procurement organizations is of no little importance in resolving the nation's Food Program. Much has already been done in this area but not everything has been entirely resolved.

In the course of the further improvement of prices and economic relations in the agroindustrial complex, it is essential to examine questions relating to price lists and subsidies on agricultural machinery, mineral fertilizers, and electric power and to the introduction of payments for water used in agriculture.

Agricultural machinery and mineral fertilizers are presently sold to kolkhozes and sovkhozes for prices lower than wholesale prices. Industrial enterprises are compensated for the difference between them from the state budget. What is more, electric power is supplied at a reduced rate for kolkhoz and sovkhoz production and lower rates are charged for natural gas supplied to hothouse facilities. According to the plan for 1985, the state budget will compensate differences in prices in sales to kolkhozes and sovkhozes as follows: mineral fertilizers--2.3 billion rubles; tractors and agricultural machinery--2.3 billion rubles; and electric power--2.1 billion rubles.

Relatively low prices on machinery, mineral fertilizers and energy reduce production costs and accelerate scientific and technical progress in agriculture. The elimination of subsidies and charging agriculture higher prices for machinery, mineral fertilizers and other industrial products would lead to higher production costs in agriculture and would require compensation in purchase prices. In our opinion, conditions have not yet been created for abolishing subsidies on industrial products and electric power supplied to the countryside.

Existing purchase prices (including markups) create the necessary aggregate profitability level only if the cost of agricultural production is stabilized and systematically reduced. Kolkhoz and sovkhoz income must grow not as a result of higher prices but due to the reduction of the enterprise cost of production and the elimination of mismanagement and all types of losses. We

cannot agree with those who do not always link the intensification of the economy and the creation of new machinery and technology with the saving of resources, with the economic effect, with the realization of intrafarm accumulations, and who ignore their own experience. This leads to the objectivization of so-called cost-increasing factors in planning that complicate the conditions underlying the development and assimilation of production capacities and at the same time leads to the ignoring and underassessment of factors that are contingent on scientific-technical progress and ultimately lead to the substantiation of low growth rates of labor productivity, to the lowering of production cost and to the decline in the growth of national income.

However the cost of agricultural production throughout the nation as a whole is not declining. Thus, the current costs of kolkhozes and sovkhozes were 70 rubles per 100 rubles of gross agricultural output (in comparable 1973 prices) under the 8th Five-Year Plan; 89 rubles under the 9th Five-Year Plan; 111 rubles under the 10th Five-Year Plan; and over 130 rubles in 1981-83. The rise of wholesale prices and rates in industry and the considerable increase in the remuneration of labor on kolkhozes and sovkhozes had a decisive impact on raising the cost of agricultural products. Between 1965 and 1983, material costs rose 4.3-fold, the cost of industrial production increased 5.3-fold and wage costs rose 2.3-fold.

The cost of producing a number of agricultural products on the nation's kolkhozes and sovkhozes declined. In 1984, the cost of producing sunflowers, vegetables, potatoes, sugar beets, grapes, meat, and poultry on sovkhozes belonging to the USSR Ministry of Agriculture, and the cost of kolkhoz production of sugar beets, meat, poultry, vegetables, potatoes, grapes, and milk either declined slightly or remained at the 1983 level.

However these are only the first results attained in the effort to reduce the cost of production based on the strengthening of cost accounting, the realization of which became possible with the introduction of new purchase prices and markups that compensate socially necessary labor expenditures.

The systematic lowering of production costs that ensures the increased effectiveness of agricultural production based on the better use of land, productive capital, machinery, all labor and financial resources, the relatively more rapid growth of labor productivity compared with the growth of wages, the increased specialization and concentration of production, and the utilization of scientific advances and progressive experience must become the main direction of rising profitability of kolkhozes and sovkhozes. A real struggle must be launched for conservation and thrift, for the reduction of production costs, and for the elimination of mismanagement and waste.

The use of progressive methods for organizing agricultural production and the adoption of highly intensive industrial technologies offer major reserves for lowering production costs.

The decree of the CPSU Central Committee and the USSR Council of Ministers "On Measures to Increase the Production of Winter Grain, Spring Wheat, Corn, Millet and Rice in 1986 as a Result off the Introduction of Intensive

Cultivation Technologies" envisages a considerable increase in the grain crop yield. The entire cost of intensification must be fully recouped by income from the additional harvest.

The nation's kolkhozes and sovkhozes also have other unutilized reserves for increasing production and reducing the cost of production. The most important of them is the effective use of grain and mixed feed in animal husbandry. Different farms expend between 2.8 and 5.8 kilograms of concentrated feed to produce a kilogram of weight gain in cattle and between 5.2 and 12 kilograms to produce a kilogram of weight gain in hogs.

Experience shows that if a farm sells a certain product at a loss, its product is usually unimportant, is produced in small quantities and at a high cost. Thus all pig farms operating at a loss sell the state only 17 percent of their state-purchased hogs. The average unprofitable potato-growing sovkhoz sells one-seventh the quantity of potatoes sold by a profitable farm. The corresponding figure for the sale of hogs is five twenty-sixths; for poultry and eggs--almost one-sixtieth.

In republics where milk continues to be relatively unprofitable, the productivity of cows is very low and expenditures of labor and feed are high. In the Georgian SSR, for example, the milk yield per cow is 1530 kilograms. The expenditure of feed units is 1.67 quintals and the expenditure of labor is 14.8 man-hours per quintal of milk, i. e., significantly higher than the national average. Analogous facts can be cited for the Tajik SSR and the Uzbek SSR. The profitability of milk production has also been affected by its low quality in the Kazakh SSR where first grade milk sales total only 39 percent compared with the national average of 76 percent. Between 45 and 50 percent of all cows in the Georgian SSR and the Turkmen SSR are barren every year. Their barrenness increases the cost of milk production.

While beef production is highly profitable in most regions of the RSFSR, in the Baltic republics and in the Belorussian SSR, it is unprofitable in the Central Asian republics and the Georgian SSR. Feedlot costs in these republics increased by 8-18 percent in a single year; labor and feed inputs per unit of output are extremely high.

The existing system of material incentives for kolkhoz and sovkhoz workers, managers and specialists on most farms does not take into account cost reduction and the higher profitability of production. It has become essential to offer incentives to kolkhoz and sovkhoz workers and specialists to lower agricultural production costs against the average annual level under the 11th Five-Year Plan. By analogy with other branches of the national economy, under the 12th Five-Year Plan it will be necessary to institute the indicator of lowering of agricultural production costs in the national economic plan.

The importance of reducing agricultural production costs is also explained by the fact that purchase prices decisively influence the formation of retail prices. The nation is implementing a policy of stabilizing retail prices on the basic food and nonfood products while retaining relatively low prices on the most important foods, which requires considerable subsidies from the state budget. Only with the stabilization and lowering of purchase prices will it

become possible to reduce these subsidies. The reduction of budget subsidies will unquestionably to a greater degree require the constant lowering of industrial production costs. This will create conditions making it possible to deliver industrial products to kolkhozes and sovkhozes for lower prices. The same also applies to all agricultural machinery, mineral fertilizers, etc.

The press periodically publishes critical comments on pricing and points out in particular that socially necessary expenditures and their correspondence to the usefulness of a product to the consumer are not fully taken into account. Some authors propose that the existing pricing methodology be replaced by principles stemming from the system of optimal functioning of the economy (SOFE), which corresponds to the theory of equilibrium prices and the market pricing mechanism.

The USSR State Committee for Prices cannot agree with proposals on the restructuring of existing pricing practices on the basis of SOFE. We cannot ignore the principles of K. Marx's theory of labor value that are a guide to pricing agencies when they compare the necessary expenditures on production and its use value, compositely expressed by the economic effectiveness indicator, which is calculated on the basis of parameters fixed in normative and technical documentation. In the process, the average branch production cost or planned, normative production costs are accepted in the capacity of socially necessary expenditures. In such a case, the actual costs of enterprises with the worst organization of production may be higher than average branch wholesale prices, which is an indication of the need to improve production and to reduce production costs.

If a product is produced by one enterprise (which is most often the case in machine building), the planned, normative costs are compared with the economic effect of its use. Only when these indicators are taken into account is a decision reached on the feasibility of putting a given product into production.

Agriculture has adopted as the basis for purchase prices zonal levels of socially necessary expenditures that reflect objective differences in agricultural production conditions. The USSR State Committee for Prices believes that purchase prices must be formed with regard to the entire system of economic interrelations in branches of the agroindustrial complex and the need to secure their equivalence in the process of strengthening agriculture's technical production base and creating conditions for the successful fulfillment of the nation's Food Program.

Some scientists of late have proposed pricing agricultural products on the basis of long-run marginal costs [zamykayushchiye zatraty] and introducing uniform purchase prices throughout the nation that are oriented toward production under marginal conditions. It is proposed that the additional income that will be obtained from agricultural production under average and optimal conditions go to the budget in the form of rent payments. The primary substantiation for this proposal is that uniform prices will supposedly make it possible to improve the siting of agricultural production throughout the nation, will accelerate the formation of specialized zones to produce basic

products for market, will simplify the pricing system, will ensure the optimal accounting of the effectiveness of production, etc.

The USSR State Committee for Prices does not believe that such proposals can be considered substantiated. First, purchase prices are based on the worst natural and climatic conditions of a given price zone. They are the largest agricultural regions. There is no economic justification for extending the action of prices set for farms in zones that are unfavorable for growing a certain type of product to all kolkhozes and sovkhozes in the nation. Prices based on long-run marginal costs will compel society to acknowledge as regulatory costs not for the basic mass of output that form with regard to the entire system of production interrelations in the agroindustrial complex but only the part of them that is associated with the production of a negligible share of the product, e. g., grain. Society temporarily permits its cultivation and the cultivation of other products in zones of high-risk agriculture notwithstanding higher production costs.

Second, the establishment of prices on the basis of costs under marginal conditions eliminates the stimulating role of price as a basic cost reducing instrument. Prices based on socially necessary costs compel farms to organize production in a way that will be profitable. Prices based on marginal production conditions, on the other hand, create an entirely false picture of the profitability of farms operating under average and the worst conditions, and prices based on long-run marginal costs cannot perform cost accounting functions.

Third, uniform prices cannot serve as an instrument for the practical solution of the problem of siting production and of creating specialized commodity zones. These zones have for the most part formed throughout the nation and correctly formed purchase prices, rather than prices reflecting marginal production conditions, are of paramount importance for their improvement.

Fourth, calculation of the level of purchase prices corresponding to long-run marginal costs showed that new purchase prices introduced in 1983 would have to be raised by almost another 50 percent. At the same time, payments of kolkhozes and sovkhozes to the budget from differential rent would have to be increased in the same amount.

The principle of self-financing (self-recoupment) through prices on agricultural products, which has been advanced by a number of economists, is also inapplicable to agricultural enterprises. It appears economically feasible to continue to finance a number of agricultural costs from centralized resources. The reference is, in particular, to large-scale land reclamation, roadbuilding, the construction of communication and electric transmission lines, to expenditures on the restructuring of the countryside, etc.

The establishment of normal cost accounting conditions in agriculture makes it possible to approach the next stage of improvement in purchase prices, the basic direction of which (as in industry) must be: the systematic lowering of their level based on the acceleration of scientific-technical progress; the industrialization and intensification of agriculture; the mounting growth rate

of labor productivity; the more effective use of land, water, material, and financial resources; and the lowering of wholesale prices in industry.

Given the planned increase in the effectiveness of social production, the main principle in further improving the entire economic system of prices and rates must be their stabilization and the reduction of the existing level based on scientific-technical progress, the growth of labor productivity, resource conservation and the reduction of production costs.

FOOTNOTE

1. "Materialy Plenuma Tsentralnogo Komiteta KPSS, 23 aprelya 1985 g." [Materials of the 23 April 1985 Plenum of the CPSU Central Committee], Moscow, Politizdat, 1985, p 7.

5013
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AGRO-ECONOMICS AND ORGANIZATION

MINISTERS, APK PREPARATORY COMMISSION OFFICIALS PRESENT REPORTS

Moscow SELSKAYA ZHIZN in Russian 2 Nov 85 p 2

[Article by A. Chupakhin, SELSKAYA ZHIZN special correspondent: "Ministers Report to Deputies: Before the USSR Supreme Soviet Session"]

[Text] There is still almost a month before the day the Fourth Session, Eleventh Convocation of the USSR Supreme Soviet opens in the Moscow Kremlin, but it is crowded in the meeting halls of the Great Kremlin Palace. National deputies are now in the process of summing up their intense preliminary work here.

Today we will get acquainted with the work of the APK [agro-industrial complex] Preparatory Commission. It is headed by Deputy F. T. Morgun, first secretary of the Poltava Oblast Party Committee of the Ukrainian Communist Party. On the agenda, State Plan indicators for economic and social development for 1986 and fulfillment of the plan for the present year will be considered, as well as the USSR State Budget for 1986 and its its fulfillment in 1984 as part of the development of the APK. First Deputy Chairman of USSR Gosplan [State Planning Committee] P. A. Paskar and Chief of the Minfin [Ministry of Finance] Agricultural Finances Administration V. N. Semenov are giving reports.

Those present are listening with rapt attention to the speakers' detailed reports and making notes in their notebooks. Many of the indicators cited were already known to the deputies beforehand and have been carefully analyzed. This is clear if only from the fact that the presentations are immediately followed by questions for the most part concerning future matters.

Commission members, in particular, have questioned whether certain aspects of plans for delivering agricultural equipment to rural areas were well founded. For instance, machines and machinery set aside with a stroke of the pen for republics for agricultural needs do not always all get to the kolkhozes and sovkhozes, out of which develop severe shortages of industrial transportation and harvest losses.

All the proposals and questions are carefully entered in the minutes and will be reflected in further work on plans before the latter are confirmed by the Supreme Soviet session.

After a discussion of the presentations, deputies listened to a number of reports presented by the various ministries and departments that make up the APK.

Before the beginning of the session we met with a member of the preparatory commission, the well-known brigade leader from the "Kuban" kolkhoz, Hero of Socialist Labor Mikhail Ivanovich Klepikov.

"Won't ministry and department representatives report to the deputies only on what shows their organizations in a positive light?" I asked him.

"That's not ruled out," answered the national deputy, who already has a lot of experience in such affairs. "Only we certainly have not been sitting with our hands folded before this meeting..."

Jumping a little ahead, I want to tell immediately about M. I. Klepikov's presentation. He took the floor after the report of USSR Goskomselkhoztekhnika [State Committee for Agricultural Equipment] Chairman L. I. Khitrun. This, strictly speaking, was natural: the agricultural equipment operator is more capable than anyone else of sorting out the affairs of the organization upon whose activity the success or failure of agricultural production today largely depends.

The deputy agreed, he said, that there have been certain improvments in the work of Selkhoztekhnika [the Agricultural Equipment Association], and that it is basically coping with its production indicators. But as far as satisfying the needs and requirements of rural areas is concerned, much still needs to be done.

And he began to cite facts. Accurate ones, checked by the deputies and the national inspectors who aided them. Repair work carried out by Selkhoztekhnika for participants in the APK make up only 79 percent of its total activity. While 34 percent of all tractors, 37 percent of grain combines and 45 out of every 100 motor vehicles on farms are still repaired by the equipment operators themselves.

"In other words," M. I. Klepikov summed up, "every fourth farm and every other tractor in rural areas at present are not being served technically by the organization that was especially created for that purpose."

The national deputy expressed the opinion that it is essential to begin studying the demand for farm equipment and spare parts seriously, taking into account what is presently available, to inspect the quality of machines and machinery for rural use more carefully, including experimental models being developed presently by machine-building ministries.

When USSR Minister of the Food and Vegetable Industry N. T. Kozlov had finished his presenation, General Director of the Minsk Tractor Plant imeni Lenin Production Association I. I. Kuleshov, who is a Preparatory Commission member, took the floor.

Current information, said the deputy, leads us to conclude that since 1981, when the ministry was formed, definite work has been accomplished. By 1985 the sale of potatoes had increased by 18 percent, vegetables by 12 percent and fruit by 23 percent. But is this growth enough? The facts cited by the deputy showed convincingly that there is no basis for complacency.

During the past years of the five-year plan little has been done by the ministry to specialize sovkhozes. Plans for purchasing different kinds of vegetables, fruits and cucurbits and for the production of canned vegetables have regularly gone unfulfilled.

I. I. Kuleshov likewise said that organizations within the jurisdiction of the ministry are not coping with their job of preserving the produce they grow and getting it to the consumer, and are not showing the needed persistence in the fight against bad management.

The ministry, in the opinion of the deputies' commission, is not adopting sufficient measures for utilizing land more effectively, especially improved land.

During the two days of the preparatory commission's work, more than 10 representatives of ministries and departments came up to the rostrum to take part in the discussion of fundamental reports. Included in their number, besides those already mentioned, were the USSR Minister of Land Reclamation and Water Resources N. F. Vasilyev, USSR Minister of the Food Industry V. P. Lein, First Deputy Minister of Agriculture A. A. Goltsov, Deputy Minister of Rural Construction G. M. Vedev, and Chairman of the USSR State Committee for Forestry A. I. Zverev.

The APK Preparatory Commission, having carefully and thoroughly discussed a large number of questions connected with fulfilling the country's Food Program, completed its work. Appropriate documents were adopted which will be discussed by the permanent commissions of the USSR Supreme Soviet chambers, and then by the country's highest organ of state power.

12962
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AGRO-ECONOMICS AND ORGANIZATION

MORE EFFECTIVE USE OF BELORUSSIAN CENTRALIZED RAPO FUNDS URGED

Minsk SELSKAYA GAZETA in Russian 19 Oct 85 p 2

/Article by G. Svirko, chief of the Main Administration for Agroindustrial Complex Matters of the BSSR Ministry of Agriculture and A. Stulba, department head: "RAPO Funds"/

/Text/ The agroindustrial associations have great opportunities at their disposal with regard to the formation and use of centralized funds through the withholding of enterprise and organizational resources. An opportunity is appearing for the financing of measures associated with solving production, socio-economic and cultural-domestic tasks on the whole for the labor collectives belonging to an association.

What resources are available to the republic's agroindustrial associations and how are they being used?

In 1984 there were approximately 37 million rubles in the centralized funds of rayon and oblast agroindustrial associations, including 23.5 million rubles in the fund for production development, 7.5 million rubles in the material incentive fund and 5.3 million rubles in the fund for socio-cultural measures and housing construction.

Despite the considerable amounts found in these funds, they are still not being used effectively by a majority of the agroindustrial associations. In many of them, the monetary funds have turned out to be "frozen." On 1 July of this year, the RAPO /rayon agroindustrial association/ accounts consisted of approximately 36 million rubles. For example, an estimate of the Brest RAPO for 1985 called for resources from the production development fund to be expended in the amount of 590,500 rubles. Actually, only 2,600 rubles were expended during the first six months of this year. Similar situations have prevailed in the Kamenetskiy RAPO and in other agroindustrial associations.

Analysis reveals that the principal portion of the funds is formed mainly by means of kolkhoz and sovkhoz resources. Enterprises and organizations which are subordinate to other ministries and departments of the agroindustrial complex do not participate in this process. Of the resources added to the funds during the first 6 months of this year, 93 percent was contributed by agricultural enterprises.

With the silent consent of the ministries and departments, resources are transferred on an untimely basis into the centralized funds by enterprises and organizations of Goskomselkhoztekhnika, Belmezhkolkhozstroy, Belkoopsoyuz /Cooperative Union of the Belorussian SSR/ and the BSSR Minplodoovoshchkhoz /Ministry of the Fruit and Vegetable Industry/. Thus, during 1984 the indebtedness with regard to the material incentive fund amounted to 1.4 million rubles and for the fund for social-cultural measures -- 0.9 million rubles. No changes were noted during the first 6 months of this year. During this period the indebtedness with regard to the material incentive fund amounted to 0.5 million rubles and for the fund for social-cultural measures -- 0.2 million rubles.

The kolkhozes and sovkhozes in Berestovitskiy, Mostovskiy, Zhlobinskiy, Rechitskiy, Lelchitskiy rayons and others made no plans for the transfer of resources. Generally speaking, the kolkhozes and sovkhozes in Shklovskiy, Stolbtsovskiy, Gorodokskiy, Miorskiy, Tolochinskiy and Sennenskiy rayons, the kolkhozes in Braslavskiy, Ushachskiy and Polotskiy rayons and the sovkhozes in Verkhnedvinskiy and Rossonskiy rayons are not participating in the formation of funds.

The trend in the use of centralized funds of agroindustrial associations for financing construction of small installations and not for general use is causing a number of economically strong farms to reject participation in the formation of centralized funds for agroindustrial associations. For example, the Kolkhoz imeni Frunze in Shklovskiy Rayon, which has a constant free surplus of up to 1 million rubles in its current account, in according with a decision handed down by the RAPO Council, should have transferred 249,000 rubles into the centralized funds in 1984. As yet, no thought has been given on this farm to transferring the mentioned amount over to the centralized funds. The same holds true for the imeni Kirov and Leninskiy Put kolkhozes in Slutskiy Rayon, the Svetlyy Put Kolkhoz in Molodechnenskiy Rayon and others. As is known, these farms are headed by competent leaders. Unfortunately, we are hearing the following comments from them:

"Why should we join up with someone else? What advantage will be realized from this? Why should we have to cover up the managerial problems of someone else?"

At the same time, the collectives of these farms are being awarded prizes as winners of the socialist competition, with use being made of the centralized material incentive fund for this purpose.

Certainly, each enterprise is obligated not to receive but rather to earn resources. Thus an agroindustrial association must provide compensation, using the centralized funds, only for objectively unfavorable conditions and not for poor work.

The withholdings of farms must be computed based upon the true requirements of the agroindustrial association and they must be coordinated with the economic potential of the farms and the actual conditions for realizing the financial resources. However, a less than objective approach is often employed when determining the contribution percentage. The production volume, the availability of resources and the profitability level are not taken into

account. For example, in 1984 the Council of the Borisovskiy RAPO established the centralized fund withholdings for low profitability farms (the kolkhozes Komintern, Put Lenina and Krasnaya Belorussiya and the sovkhozes Troyanovka, Mstizhi and Nivki), all of which lacked their own funds for material incentives and social-cultural measures and housing construction. For 1985, the withholding amounts for these funds were also not differentiated at the Borisovskiy RAPO.

The creation of centralized funds constitutes only one half of the task. Equally important is the need for ensuring that they are used effectively. In 1984, a total of 22 million rubles was expended and during the first 6 months of this year -- approximately 10 million, including 6.8 million of the fund for production development, 1.8 -- material incentive fund and 1.2 million rubles of the fund for social-cultural measures and housing construction.

The resources of the development fund were used mainly for the construction of projects of a production nature, capital repairs, for acquiring equipment and also for the repayment of Gosbank loans. In Rogachevskiy Rayon, for example, such resources were used for building a department for the processing of flax and in Svetlogorskiy Rayon -- a department for nutrient yeasts.

The councils of the Dzerzhinskiy, Smorgonskiy, Goretskiy and Gomelskiy RAPO's have been most active in connection with the formation and use of centralized funds.

It bears mentioning that there have been numerous violations of the statutes governing the formation and use of centralized funds. Many agroindustrial associations are expending funds in the absence of approved expenditure estimates. Last year the councils of the Voronovskiy, Lidskiy, Borisovskiy, Kopylskiy, Berezinskiy, Tolochinskiy, Ivatsevichskiy, Berestovitskiy and other RAPO's were guilty of having proceeded in this manner.

For example, only 73,200 rubles have been centralized since the formation of the Stolbtsovskiy RAPO, of which amount only 13,000 rubles have been expended.

The use of centralized funds for measures not associated with solving the production, socio-economic and cultural-domestic tasks confronting the agroindustrial associations is being tolerated. For example, using resources from the developmental fund the Council of the Borisovskiy RAPO acquired a tape recorder and a video-tape recorder for a supporting organization at an overall cost of 5,300 rubles. Using its development fund, the Lepel Agroindustrial Association paid fines in the amount of 723 rubles that were imposed by the oblast motor vehicle administration for kolkhozes and sovkhozes. The Glubokskiy RAPO used approximately 11,000 rubles for temporary duty and farm expenses of the agricultural administration of the rayon executive committee.

In violation of active legislation, bonuses were paid out of the material incentive fund to the leading workers and specialists of enterprises and organizations included in the structure of agroindustrial associations: in connection with professional holidays, on the occasion of anniversaries and so forth. For example, in accordance with a decision handed down by the

Council of the Checherskiy RAPO, bonuses were paid out to 17 leading workers and specialists of the agricultural administration and other organizations.

The resources of the centralized material incentive fund are often used for the payment of wages and for various types of additional payments added on to the wages for staff workers of agroindustrial associations. In 1984 the centralized material incentive fund of the Shchuchinskiy RAPO was used for paying the wages for a technician who had serviced the dispatcher communications. An inspection established the fact that the rayselkhoztekhnika's in Minsk Oblast had allowed crude violations of contractual obligations to take place. Despite this fact however, the centralized material incentive fund of the oblast agroindustrial association was used for issuing bonuses to staff workers of the Minsk Oblselkhoztekhnika based upon the operational results for 1984. Overall, based upon the operational results and using their own sources and also the resources of the centralized fund of the oblast agroindustrial association, the management of the oblselkhoztekhnika (chairman and his deputies) received bonuses ranging from 971 to 1,463 rubles.

In August of this year, during a committee meeting of the Presidium of the BSSR Council of Ministers concerned with agroindustrial complex matters, the question of the formation and use of the centralized funds of agroindustrial associations was examined. A basic evaluation of the shortcomings was provided. The appropriate ministries and departments and also the councils of agroindustrial associations were required to ensure the observance of the statute dealing with the formation and use of centralized funds and the expenditure of the mentioned resources strictly as intended.

In conformity with the 3 September 1985 interpretation by USSR Gosplan, USSR Minfin /Ministry of Finances/, USSR Gosbank and the USSR State Committee for Labor, the resources of the centralized material incentive fund of a rayon agroindustrial associations must be used mainly for supplementing similar funds of kolkhozes, sovkhozes, enterprises and organizations included in the structure of agroindustrial associations; oblast agroindustrial association -- for supplementing similar funds of RAPO's, enterprises and organizations.

For the payment of bonuses to oblast and rayon agroindustrial associations, the conditions for the issuing of such bonuses should be developed and approved by their councils and at no time should they duplicate the conditions called for in effective statutes dealing with wages and the issuing of bonuses. The amount of bonuses paid out from the material incentive fund of agroindustrial associations must not exceed two official salaries (wage rates) per worker annually, within the limits for overall bonus payments. The material incentive fund can be used for furnishing material assistance to the members of kolkhozes, manual and office workers and leading and engineering-technical workers of sovkhozes and other enterprises and organizations included in the structure of associations.

The resources of a centralized fund for production development are expended for financing capital investments, for capital repairs and for other expenses associated with the capital investments of enterprises and organizations included in the structure of agroindustrial associations, regardless of departmental subordination. For example, they can be used for capital

construction, for the modernization and capital repair of buildings and installations, for the repair of roads, bridges, wells, water lines and other production objects, for the technical re-equipping of production, for the replacement of fixed capital and for improving production organization. They can also be used for other measures associated with the development of new types of products, for raising labor productivity and so forth.

Thus the councils of agroindustrial associations have been granted extensive rights with regard to the creation and use of funds for economic stimulation. The correct use of these resources will promote the accelerated development of the branches of the agroindustrial complex.

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AGRO-ECONOMICS AND ORGANIZATION

PROGRESS, PROBLEMS OF IMPLEMENTING COST ACCOUNTING IN LITHUANIA

Moscow SELSKAYA ZHIZN in Russian 6, 7 Oct 85

[Article by N. Aliyeva and A. Morgun, SELSKAYA ZHIZN special correspondents, Lithuanian SSR, in the column "Cost Accounting -- The Method of the Thrifty": "It Begins With a Plan"]
[6 Oct 85 p 2]

[Text] With the newspaper article "Cost Accounting -- The Method of the Thrifty" that was published on 21 August, SELSKAYA ZHIZN began a discussion of this very important socialist management method.

Experience has provided quite a few examples of the effective use of cost accounting. The experience of the Lithuanian SSR deserves attention. The republic's kolkhozes and sovkhozes are working profitably and are achieving a stable increase in productivity and a decrease in product costs. Our tale concerns this and the still unresolved problems in developing cost accounting in the republic. Members of the editorial board's social economic council participated in its preparation: P. A. Gryaznov, chairman of the Za Mir Kolkhoz in the Lithuanian SSR's Shalchininkskiy Rayon; B. I. Poshkus, corresponding member of the All Union Academy of Agricultural Sciences imeni V. I. Lenin; and A. S. Subbotin, council chairman of the Pochenskiy Rayon Agro-Industrial Association in Bryansk Oblast.

The output of crop and animal husbandry products has increased during recent years in Lithuania. Their total output on all categories of farms grew by 30 percent on the average when compared with 1980. More grain, milk, meat, sugar beets, and flax fiber are being sold to the state. Labor productivity grew by nine percent during last year alone. The growth in the profits of the sovkhozes and net income of the kolhozes comes from this. Rural workers are working in a stable manner this year also.

It can be seen from the table how the number of unprofitable and low profit farms decreased after the measures adopted in accordance with the decision of the May 1982 CPSU Central Committee Plenum.

Year	Unprofitable	Profits		Total	Percent of the total
		up to 10%	10-15%		
1982	302	326	118	746	71
1983	--	149	114	263	25
1984	--	71	70	141	14

The successes of the republic's agriculture are made up of the good results of the work in individual collectives for whom cost accounting is the basis of savings and a path toward high profitability. The Pirmin Kolkhoz in Shyaulyaiskiy Rayon is a typical example of this. The plans for the sale of the main types of agricultural products are being successfully fulfilled here. Their cost is constantly being lowered -- during the last 10 years by almost 2.5-fold! Expenditures for gross output are also being lowered. As a result, profit has risen more than fivefold when compared with the first year of the 10th Five-Year Plan. The economic indicators of the farm have particularly improved during the last three years.

It is important that fixed capital is growing here mainly through their own resources. Is this not a sign which should now be considered an excellent one for each true proprietor who has gotten used to and who knows how to rely primarily on his own pocket and not on the state's pocket?

They mentioned one farm, but it is possible to place hundreds of others from different rayons in Lithuania in a line with it: the Vishnyunay Kolkhoz in Prenayskiy Rayon, the Kolkhoz imeni Dzerzhinskiy in Vilniusskiy Rayon and the Draugas Kolkhoz in Radvilishkskiy Rayon.

Economically means profitably. This has become a rule for work collectives and the best farms. They did not learn it all of a sudden and not in an hour but by the thorough mastery of cost accounting. This year, 89 percent of all brigades and links in crop growing, 82 percent in animal husbandry, 89 percent in construction using one's own resources, and 71 percent in the repair of equipment are working under a collective contract.

It is hardly necessary now to convince anyone that the successful mastery of cost accounting is inseparably linked with the improvement in production planning. These are links in one chain. The goal here can and should be one: increasing the independence of farms and their initiative in increasing the output of final products, raising effectiveness in using resources and allotted assets and improving work quality.

In Lithuania, these tasks are being solved to a large extent by the skilful use of the system for equalizing the economic conditions of management on the basis of a differentiation in state purchase prices for farm and field products. The distribution of capital investments and material and technical assets to rayons and farms is being done considering the establishment of equal conditions for expanding production.

The development of a single plan for expanding the agro-industrial complex is being done consistently in the republic.

V. Astrauskas, secretary of the Lithuanian Communist Party Central Committee, says: "We are devoting our main attention to improving the balance between product output and the expansion of the material technical base and to intensifying the specialization and concentration of production further considering natural and climatic conditions. We are trying to increase responsibility for the rational use of the land and existing resources, to strengthen savings operations and to increase the quality of products and their preservation. "

One of the aspects of this work is to improve the planning of production at all levels -- from the farm to the republic's Council of Ministers. The Council of Ministers was allowed to approve a number of indicators as an experiment: the amounts of state purchases of potatoes, vegetables, fruits, berries, cattle, poultry, and several other items. It basically concerns products that are required in the republic.

Another important aspect is to use the abbreviated system of production and financial plan indicators with a broader application of norms.

L. Yanushkene, chief of the inter-branch communications and planning department of the Prenayskiy Rayon Agro-Industrial Association, has laid bare the annual production and financial plan of one of the farms. She has said: "In the new form of the production and financial plan, they have repudiated indicators which are optional for calculations and which are also repeated in other tables in it. In the present form, their number has been reduced from 16,000 to 4,000 when compared with the one used previously. Farms, however, can establish a higher number of indicators when necessary if this is convincingly argued."

The use of consolidated standards and norms for material and labor expenditures has permitted the cost of agricultural products to be planned based on actual data from the three last years which has been adjusted considering the indicators of the flowsheets and production achievements of progressive farms. With this planning of product costs, agronomists, livestock specialists, and other specialists perform part of the planning work. This is opening up broad opportunities to expand creative initiative and is raising their responsibility.

The virtue of normative planning is present. The rayon's farms previously barely managed to compile production and financial plans by 1 March, and now -- the work on them is finished in January.

L. Yanushkene continued: "It is convenient to work with a standard but one should not forget that this is a generalized number based on work results over several years. You see, one year is not like another in agriculture. Our workshop is under the open skies. The influence of natural and climatic

factors can be reflected in final production results which will deviate from the standard. In our opinion, that is why this method is good for areas with more or less stable conditions.

Intra-farm planning is also being carried out in Prenayskiy Rayon according to new and improved forms. Their advantage lies in the fact that they take into account almost all the main indicators that are required for the introduction of a collective contract and cost accounting. For example, the limits of expenditures for obtaining products, the rates of pay for final production results, and the concluding accounts with members of the contract collectives are included here.

Collectives, where intra-farm accounting is at a high level, expect a desirable effect from the work of improving planning. It is no accident that we have heard the most interesting observations about improving planning on these farms.

On the Za Mir Kolkhoz in Shalchininkskiy Rayon, the relations of the contract brigade with the management board are jointly regulated by a signed contract. In brief, they look as follows: Equipment and land are attached to the brigade. Only the plan for selling individual types of products is passed to it. The right to make the final decision -- who will sow what on each area -- is granted to the brigade.

P. Gryaznov, the chairman of the management board, is convinced: "We think that it is impossible to do otherwise under true cost accounting -- although we will be frank -- not all of us understood it correctly. We even critiqued those who were not accustomed to planning for the long term and who were used to exerting guardianship over kolkhozes down to the smallest detail. Alas, we are simply not now able to pass such 'plans' to independent costaccounting collectives."

Yes, it is now impossible not to take into consideration the growing independence of brigades using a contract. The experience of the Za Mir and Vishnyunay kolkhozes and others convincingly testifies to this. It also testifies to the fact that innovators often lack attention and help in solving the problems that arise. Nevertheless, the truth is indisputable. The traveller is mastering the road. This means that the creative search must be continued.

The development of new planning methods is also taking place on the Vaysogalskiy Experimental Farm of the Lithuanian Animal Husbandry Scientific Research Institute. G. Survilene, the farm's chief economist, says:

"Planning is being carried out according to an extremely simplified diagram. On the basis of our requisitions that had been concluded with the rayon agro-industrial association's council, funds for equipment, fertilizer and concentrates are passed to us and the amount of capital investments is determined as well as the amount of product sales to the state. Everything else -- the amount of livestock and the area sown with some crop or other -- is the internal affair of our collective and its costaccounting brigades. Their material interest in obtaining the maximum amount of high quality products assures a stable increase in labor productivity."

P. Meylus, director of the Vaysogalskiy Experimental Farm, thinks: "The procedure, which exists everywhere for planning from what has been achieved, and the bringing of the majority of the indicators to the farms are a brake on mastering cost accounting and expanding production. It turns out that he who has the higher level in expanding production, is in unfavorable conditions. The desire to spread out and save up reserves for a future day so that the collective will not suffer morally and materially today, is born in some people."

It was necessary to hear about these costs, which impede the firm advance of cost accounting, on many farms in Lithuania. All of the discussants pointed out the need for a very rapid dissemination of the norm method for planning production which had been tested in Prenayskiy Rayon in particular.

The economic data, which were cited at the beginning of our story, demonstrate the successful course of the experiment. But what figures measure the time saved in compiling plans and the advantages which provide an opportunity for bringing the production volume and resources to the contract collectives in a timely fashion? The question automatically arises: Is the dissemination of the republic's experience throughout the country occurring too timidly? You see, each sensible experiment should find its own followers in the final analysis -- the more so since many chairmen of rayon agro-industrial association councils in Russia, the Ukraine, Belorussia and other republics have already fought for such innovations in planning for a long time. It is a different matter that, of course, the right to continue this experiment cannot be given to everyone -- so that the very idea is not compromised by a lack of preparation. Where the first stone in the foundation of future experiments has been laid, it is better not to dally.

You ask: What is this "first stone?" Lithuania's experience convinces one that the main basis is the broad economic training of rural workers. We will talk about this in the next issue.

[7 Oct 85 p 2]

[Text] Imagine the following picture. When completing the morning briefing, the director of a costaccounting subunit recalls in conclusion: "Has anyone forgotten that today is the next economic training graduation on television? The broadcast should be a business-like one. I recommend it."

Taken from life, this scene illustrates the level of publicizing economic knowledge in the republic. Even television, which has organized a series of broadcasts aimed at bringing the ABC's of cost accounting and the collective contract to the multi-thousand strong rural audience, is not on the sidelines. Rayon newspapers regularly prepare special columns on this same subject.

In a word, they saw their task in the republic not only to be the making of a brilliant display of statistical data on the mastery of the collective contract but also the raising of the quality of contract costaccounting subunits. Here, the training of directors and of the rank and file implementors is the main avenue.

A. Bubnis, chairman of the Prenayskiy Rayon Agro-Industrial Association's council, is a maximalist on this question: "To teach one brigade leader to count? It is not enough. Our task is posed somewhat differently. Each one must know how to count -- the field worker, the machine operator and the cattle breeder. The demands on a brigade leader are immeasureably higher; he is an economist, an agronomist, and a livestock specialist."

Do not let these requirements seem overstated or excessive -- the "Prenayskiy version" of the contract assumes this level of training in a middle ranking specialist. First, however, a few words about the version itself.

It was born on the Vishnyunay Kolkhoz several years ago. Its essence lies in simplifying the system for planning and for accounting for expenditures for the output of products under the terms of a collective contract and intra-farm accounting. P. Aleknavichyus, chairman of Vishnyunay, was and remains its initiator and enthusiast. Six kolkhozes in the rayon are now working this way.

The method for accounting for labor and for calculating the advance paid to members of the costaccounting collectives evokes the greatest interest here. These responsibilities have been placed on the brigade leaders. We conducted a detailed discussion with one of them, A. Shidlauskas.

An energetic young lad and a graduate of an agricultural technical school, he did not hide how fascinating the work was going for him. Complete independence! Farms and equipment have been attached to the complex brigade. Only one thing is demanded -- to provide the maximum output.

Shidlauskas shows us a document that is small in size -- "Work Registration Form." The bookkeeper issues it once a month to each member of the contract collective. They differ somewhat in format -- for tractor operators, field workers and drivers. Essentially, however, they are the same: At the end of the day the brigade leader jots down on the form the sum earned by this or that kolkhoz member during a shift. At the end of the month, the forms go to the bookkeeping section where the total of the advance is determined through a simple arithmetical calculation. It is an advance; you see, the final calculation will take place after the completion of the agricultural year and will depend on the amount of product obtained.

A. Shidlauskas says: "We receive the assets for the advance from the wage fund which is calculated for our brigade based on process charts. I must have a thorough knowledge of the norms and rates for the performance of certain types of work. I have the right to increase the amount paid for high quality and for early fulfillment of the quota. It's as if I used a coefficient of labor participation. Generally speaking, I take everything into account when setting down the daily advance: the people's attitude toward work, labor discipline, and observation of equipment safety. Large rights have been granted, but the responsibility is no less."

The brigade leader did not speak idly about responsibility. His work also is monitored. Before shifting to such an advance system, they thoroughly

train and prepare each kolkhoz member on the farm. It is no secret how much one should get for what work. In addition, everyone, who is dissatisfied with his pay, can send a request within a three-day period to the kolkhoz management board to resolve the dispute.

Finally, the ruble emerges as the chief controller here. It is not necessary to talk about the fact that the subunit's collective is interested in working conscientiously. The final result and -- this means -- the pay of each one depends on this. It is no less beneficial to save direct expenses and the wage fund. You see, the amount, which has been saved, is distributed at the end of the year between the collective members calculated on the advanced ruble.

P. Aleknavichyus, chairman of Vishnyunay, convincingly says: "I would make the ruble the regulator of production on the farms, generally speaking. I would establish conditions that would put the ruble in the role of both an accounting clerk and a controller. How much simpler would be the bookkeeper's accounting! You see, practically only a single document is required -- the work registration form -- and in addition to it an uncomplicated file of operational documents with whose help the leaders of the costaccounting subunits would calculate direct expenditures." We are faced with an experiment? Undoubtedly -- but it has evoked interest on many farms in the republic. I should think so. Vishnyunay is increasing sales of the main types of agricultural products to the state without significantly increasing expenditures for production and without a change in the number of workers. We would like to direct attention only to one eloquent nuance. Many other kolkhozes would like to use this same method in Prenayskiy Rayon. The rayon agro-industrial association council, however, has still not recommended it to them. Why? The arguments "against" are extremely convincing.

A. Bubnis, chairman of the Prenayskiy Rayon Agro-Industrial Association council, thinks: "The costaccounting method, which is being practiced on Vishnyunay cannot be automatically transferred to any farm. A kolkhoz which is lagging behind, must 'be old enough' for this version -- if one can express it this way. It is effective where the organizational level of labor is high, where order has been introduced everywhere, where the brigade leaders are dependable and intelligent, where serious preparatory work and economic training has been conducted among the collective, and where the theory of cost accounting is organically combined with its practice without detracting from the day-to-day affairs of the kolkhoz."

We had occasion to hear about the need for such an approach to training not only on this farm and in this rayon -- but everywhere. It is indeed difficult to overestimate the effect of such economic universal compulsory education.

There are quite a few farms in the republic which are successfully using the check form for controlling expenditures. In particular, this version of the contract is being practiced on that same kolkhoz imeni Dzerzhinskiy in Vilniusskiy Rayon. Home-made checks for mutual accounting are being used here; they find out how work should be organized not in seminars but basically from material in the central periodical press.

The impression is being created that, having concentrated its efforts on experiments to master cost accounting, the republic's Ministry of Agriculture has some how forgotten that this work is not performed in an empty place -- with the collective contract, an effective and dependable check form for mutual accounting has been found in the country. It is not simply a desire of the republic's Ministry of Agriculture to publicize it more widely and to help -- especially in a methodological manner -- those farms who wish to use it themselves. In our view, this is the duty and responsibility of its specialists.

It would be naive to assume that mastery of cost accounting in the republic is occurring without problems. We posed the question -- what is impeding cost accounting? -- to many farm and contract subunit directors. The answers we received were for the most part similar. The main thought boiled down to the following. The principles of cost accounting must be adhered to by all organizations, establishments and enterprises which are connected in some way or other in a single chain with the kolkhozes and sovkhozes. One of these principles is the principle of equal interest in the final work results of agricultural enterprises.

The party and government decisions, which are aimed at improving the mangement of the agro-industrial complex, point out ways to solve these problems. Unfortunately, the reorganization is taking place too slowly here and there, and departmental and local interests at times prevail over state interests.

We have more than once talked and written at different levels about nervousness in work and about the harm to the farm's economy, which slipshod activity by procurement and processing enterprises brings. Without concealing his annoyance, P. Abromavichyus, a brigade leader on the Sutkunskiy Pig Farm on the Pirmin Kolkhoz in Shyaulyayskiy Rayon, talked to us about his claims against the Shyaulyayskiy Meat Combine.

"It is extremely difficult to hand over to the meat combine the pigs, which have been reared above the plan, at the end of the year. They do not take them. The reason is a simple one. The enterprise has fulfilled its annual quota and there is little interest in overfulfilling it. The fact that the surplus of animals on the farms costs the farm in general and our contract brigade in particular tons of concentrates which are expended in vain, does not disturb the enterprise. How should I, the brigade leader, explain such bad management to the people? How is it possible to maintain a high awareness and responsibility for the entrusted task in them after this? Also, let us not hand over the animals on time to the combine and they fine us. The combine, however, remains unpunished for some reason."

The example is not an isolated one. At the end of the year, many enterprises engaged in processing meat refuse to accept cattle, citing the load on their capacities. One can hardly consider it correct that only kolkhozes, sovkhozes and the contract collectives of farms suffer from this.

They have recently begun to use the achievements of scientific and technical progress in a broader way in order to improve the management of agricultural production. Microprocessors and computer equipment have arrived in the management services of many farms. Life requires the acceleration of this process -- but not to the detriment of the qualitative aspect of the innovations. They sometimes forget about this. As a result, such a costaccounting principle as the mandatory savings of expenditures is undermined.

A great deal of criticism, for example, arrives from farms about the poor organization of the mechanized bookkeeping accounting which is carried out centrally by rayon machine accounting stations.

E. Tomashevich, chairman of the Kolkhoz imeni Dzerzhinskiy, said: "How can I explain to the kolkhoz members why their wages are delayed three-five days? People are not at all interested in knowing that the sluggish rayon 'accountants' are guilty of this. They work well themselves and have a right to expect this from others."

A. Bunyavichene, chief economist of the Nemanyunay Kolkhoz in Prenayskiy Rayon, says: "Generally speaking, we have rejected mechanized accounting. Why spend money on it if the information arrives late at the farm? The following situation has arisen every now and then: It is time to sum up the results of costaccounting activity, but the necessary documentation is not there. We were forced willy-nilly to set our accounts right and to reject centralized accounting as a consequence.

A similar situation has taken shape in Radvilishkskiy, Shyaulyayskiy and other rayons. It goes without saying that mechanized accounting is a task for the future -- with the essential stipulation that it is necessary to organize it so that it will help cost accounting and not impede it.

Farm innovators are encountering another type of difficulty which represents a distinct "barrier" on the road to mastering cost accounting. Take that same Za Mir Kolkhoz. The new form for organizing labor has permitted part of the management personnel to be freed here. Not a single higher organization, however, has permitted their number to be decreased. It is paradoxical but the innovative ideas of this collective often find support with difficulty in several republic departments. A great deal of effort and time is required, for example, to obtain permission to decrease the number of accounting documents.

The difficulties and various problems are sufficient. It is indicative, however, that hundreds and thousands of people are working patiently to solve them, without being filled with despair at failures and without being seduced by initial successes. They are working, as is said, seriously and for the long-term. The development of the economic thinking of the rural workers, which is contributing to the mastery of cost accounting and the collective contract, is becoming a noticeable force in the republic for accelerating scientific and technical progress and for expanding agricultural production. It is also becoming a solid foundation for cost accounting relationships and a source of initiative and a creative approach to the task.

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